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Teaching through Stories

Renewing the Scottish Storyline Approach in Teacher Education

WAXMANN

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Preface

Learning is often considered to be a direct result of teaching. But the experienced, conscious teacher knows this cause-and-effect mechanism operates in both directions. Teachers observe students' learning, gather important information, and adjust their teaching accordingly. Those who adopt The Scottish Storyline Approach often see and experience how students are involved and motivated by the theme at hand in a very special way. Storyline emphasises the students' active role in learning, and the importance of encountering open and engaging questions that lack fi ed answers. Positive experiences have led teachers at different stages of education in a variety of countries to adopt The Storyline Approach. Over the decades, its international dissemination has been accompanied by increasing international research interest, although several issues are yet to be resolved. As researchers, we cannot be satisfi d with the subjective opinions of teachers and students, and look to deeper investigation. Th s anthology is therefore to be welcomed, filling a research gap addressing the connection between theory and practice, school and university, as well as teacher studies and teaching practice. The authors have chosen to focus on the use of Storyline in teacher and higher education. Requirements and good experiences of good quality in teacher education spread like rings on the water to the fi ld of education.

Educational steering documents in many countries emphasise the importance of students working in a more interdisciplinary fashion. Working methods are described by concepts such as phenomenon-based, cross-disciplinary, problem-based, and project-based, and there is often some uncertainty about the defin tions of the different concepts. Various interdisciplinary methods come with rationales such as the reality around us is cross-cutting, and the way of working can put knowledge into context, which increases meaningfulness, perceived as motivational. At primary school level, there is a long tradition of working on different themes. Yet, from the subject teacher perspective, we encounter concerns that the students' subject knowledge suffers when interdisciplinary approaches are applied. Storyline was created in the 1960s in Scotland, in response to a need identifi d by teachers regarding a new directive on the subject integration of multiple curricula. The challenge for approaches like Storyline is to show that interdisciplinary methods do not compromise students' subject-specific knowledge. Good models for subject integration, realised as a combination of theory, refl ction and practice, must be introduced into teacher education at all stages, if we expect practitioners to use them after their training. For this to be possible, we need collaboration between teacher educators, the courage to emerge from proven paths, and research-based models.

While many key pedagogical ideas have persisted since the advent of The Storyline Approach, there has also been a slew of developments within school systems, both nationally and internationally. Core competencies such as digital literacy and multiliteracy are, in accordance with the European Commission recommendation (European Union, 2019), strongly emphasised in many curricula. Sustainable development and

the work to meet global goals in accordance with Agenda 2030 permeate many steering documents. This anthology dedicates a chapter specifically to documenting research on Storyline as a tool in teaching about sustainable development. Alongside the assessment of the pupil's specific subject knowledge in different school subjects, there is an increasing need for more versatile and inclusive assessment of both content and form.

The many changes bring challenges. To what extent can Storyline be and needs to be updated in line with these changes? A classic expression within Storyline is that "structure gives freedom". For Storyline practitioners, this means striking a balance between adhering to the core structures and opening up to the 2020s. For the authors of this anthology, it is important to scrutinise the research on and new trends within Storyline with a critical eye. Updates must not be made at the expense of the core ideas of The Storyline Approach. Therefore, I welcome, for instance, the chapter on manipulation.

This anthology is intended not only for pedagogues active in teacher education. It will also be of great value to teachers within in-service education, and students and teachers in the field who will find support in drawing conclusions based on their experiences and teaching practice.

Ann-Catherine Henriksson

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Teaching through Stories: The Storyline Approach in Teacher Education

Kristine Høeg Karlsen and Margaretha Häggström

Credits: Kristine Høeg Karlsen

Introduction

Globally, crucial efforts are being made to develop, change and transform education to meet the demands of the internationalised cultures and policies of the twenty-fi st century. As educators prepare their school children to respond to the challenges and possibilities of globalisation, mobility, environmental and social issues, and an insecure future, they also have to simultaneously interact with these entangled processes themselves. Educational policies and structures are influenced by globalised values, principles and ideals and have led to changed curricula in many countries. New curricula require new pedagogy which in turn creates new demands on teachers and learners. Educational systems, teachers and learners, need to be accustomed to the key concept of life-long learning. New skills have been for quite a while – and still are – required for new ways of managing pupils, teaching and learning situations, material and resources and school systems. Teacher education plays an essential role in transforming pedagogical approaches and methods and equipping prospective teachers with 21st century skills, but have been criticised for a lack of connection between theory and practice, evident in different parts of the world (Hennissen, Beckers, & Moerkerke, 2017; Marcondes, Leite, & Ramos, 2017; Peercy & Troyan, 2017), including the countries in Scandinavia (Hennissen et al., 2017; Häggström & Udén, 2018;Korthagen, 2010; Rönnerman & Salo, 2012).Eriksen, Larsen, and Leming (2015) claim that teacher education benefits from the potency of various disciplines while applying interdisciplinary methodologies in teaching and learning processes. The use of refl ctive practice helps student teachers

to make connections between theory and practice, they suggest. This can be conducted through practice-based experience when student teachers attend school-based training courses where students are given the opportunity to integrate pedagogical theories with their own experience of teaching as a teacher. Through reflective practice, students may develop an awareness of various teaching and learning approaches. To achieve this, Eriksen et al. (2015) argue, students need to be capable of decoding their pupils' motivation and to act accordingly, hence, to use their own reflections to meet the needs of their pupils.

One starting point to promote reflective practice and to make connections between theory and practice and simultaneously provide a throughout pedagogical approach, including a creative student-centred pedagogy, is to implement The Storyline Approach (TSA[1]) in teacher education. This was highlighted at the 7th International Storyline Conference, *Storyline – The next generation* (2018) in Ljubljana, Slovenia, where researchers put teacher education on the agenda for preparing student teachers for the future professional practices and for teaching 21st century skills (Happstadius & Udén, 2018; Karlsen, Lockhart-Pedersen, Bjørnstad, & Høeg, 2018; Murray, 2018). There are many reasons for furthering Storyline as a pedagogical approach that includes a variety of didactic tools into teacher education; the vigorous and flexible nature of the approach, inclusiveness towards different learners, cultivating students' creativity and imagination, the recognition and acceptance of feeling as an essential part of learning processes, to mention a few. The application of TSA, based on an open structural design, can thus provide teacher educators with an alternative framework allowing for (and enabling) interdisciplinary collaboration and topic-based teaching across various teacher-teams and disciplines. Cooperation among colleagues is an essential prerequisite for success in cross-curricular teaching and learning, and such teaching will give one more opportunity to better equip student teachers to develop skills for the 21st century.

Through a theoretic discussion, this chapter aims to contribute comprehensive knowledge related to core aspects of TSA with teacher education as the context. TSA relies on the premise that stories support meaning-making processes, something that according to Mitchell and McNaughton (2016) "has been recognised by Storyline practitioners since the 1960s" (p. ix). This being the case, there have however been few attempts to elaborate on how theoretical concepts of story relate to meaning-making processes in TSA. To explore this, we see several approaches to unpack this relationship. One approach is to consider story telling as a fundamental activity in human experience. To elaborate and deepen the understanding and meaning of using stories in teaching, we rely on Carr's (1991) hermeneutic and transcendental view. Nevertheless, when stories are fundamental, then *everything* is a story, and for our purpose, to understand Storyline as an approach to teaching, we thus need a second approach; to borrow concepts from the text analytic perspective of narratology. It has to be said that, it *can* be problematic to *use* text analytical concepts from narratology to describe how to plan, structure and implement Storylines because they have been devised for other purposes, to analyse and not produce narrative texts. Still, we believe that such concepts are useful

1 TSA is an abbreviation introduced by Karlsen, Lockhart-Pedersen & Bjørnstad (2019)

when understanding TSA, as they bring analytical clarity to Storyline as a practice of teaching. In the chapter, we have decided to also build on Bal's (1997) text analytical concepts, to discuss pedagogical and organising features of TSA.

The chapter has three different parts. By relating concepts of story to a meaning-making processes, the first part aims to elaborate and deepen the understanding of Storyline as an approach to teaching. Thereafter, obstacles and keys to effective use of stories in TSA within Teacher Education will be discussed, before the presentation of the content and organisation of the anthology, complete the chapter.

Making sense through the use of story

TSA, is a problem-based, cross-curricular and topic-based approach that focuses on (and contextualises) teaching and learning through an advancing narrative (Bell & Harkness, 2013). In the literature on Storyline, the use of *stories* is based on Steve Bell, Sallie Harkness and Fred Rendell's, staff tutors at Jordanhill College of Education in Glasgow in Scotland in the 1960s, understandings of the pedagogical benefits of using narratives in pedagogical teaching and learning situations. The original creators approach their work from a practical point of view aiming to assist school teachers to make changes in accordance with the new curriculum published in Scotland in 1965. They claimed, according to Brandford (2019) "that no particular theoretical perspective influenced their work" (p. 64). Relying on the three founders of TSA, recent literature on Storyline, acknowledges the potential of TSA and for using stories in learning; for example, Schwänke and Plaskitt (2016) begin by asking the hypothetical question: "How can you learn from a narrative?" (p. 42). Providing evidence in the bible, ancient myths, TV shows and commercials, they claim that "humans love stories" (p. 43). Referring to Bell, Harkness and White (2007) they explain that "stories have been the preferred way for transferring knowledge from one generation to the next" (p. 42), and that stories "give meaning and context to information, and everyone likes to learn about things that are meaningful to them" (p. 43). Although not specifically referring to TSA, Krenicky-Albert (2004) highlights the narrative principle when arguing for the advantages of using stories in foreign language teaching, and claims that narrative "supports understanding, as well as the consolidation and recall of knowledge […] the narrative connects reality with the pupils' interests, needs and knowledge imbedding tasks and activities into a meaningful context" (p. 26). Nevertheless, surprisingly few attempts have been made to elaborate and/or explain from a more theoretical point of view, what function narratives have in TSA – something that also became evident in the work of Karlsen and Lockhart-Pedersen (2020) (chapter 19, in this anthology). Even though the research on narratives and Storyline is limited, the original creators of TSA make it clear that their epistemological premise includes that telling and creating stories is a way of knowing, and it is important to stop and dwell a bit on this proposition before entering into the chapters of the anthology.

Narratives, according to Carr (1991) represent human reality (p. 19). All human experience contains a narrative structure (ibid., p. 18). The concept of narrative includes a progression of events, a storyteller and an audience who experience the story (ibid.,

p. 46). In such a view, narratives are "the structure inherent in human experience and action" (ibid., 65). Narrativization, according to Carr (1991), is "our primary ways of organizing and giving coherence to our experience" (ibid.). But, narrativization can also refl ct nothing else but wishful thinking, such as "an 'escape' from reality" (p. 15–16), and at worst as moralism, "in the interests of power and manipulation" (p. 16). In life, people tell stories, listen to stories, act and live out stories, and sometimes changes stories to make sense of the reality (Carr, 1986, p. 125–126) In this case, narrative activities according to Carr (1986) are practical before becoming a cognitive or aesthetic activity (p. 126). Narration, in this sense is "constitutive not only of action and experience but also of the self which acts and experiences" (ibid., s. 126), and thus constitutes the process of knowing. In this way, stories order our everyday experiences in a way that is useful for both learning and living. Further, stories guide us by helping us both to keep track of our past, and to orient us towards the future. Eventually, stories are fundamental to how we communicate, collaborate and co-exist by systematising knowledge, values and social practices.

In TSA, a story or a narrative creates the context in which a number of incidents (the plot) occur. Th s entails the participants' ownership and thus control over the learning progress (Bell & Harkness, 2013, p. 2). TSA thus structures a "narrative system" (cf. Bal, 1997) with agents; the teachers designing the "line", and actors; the students who bring the Storyline to life (cf. Bal, 1997, p. 5). The narrative structure, including time, place and characters is used to move the plot forward. A Storyline can therefore be understood within the broad corpus of narrative texts such as novels, fairy tales, newspapers, comics and other pieces of art (cf. Bal, 1997, p. 4). Different from the narrative structure in human experiences (cf. Carr, 1986, 1991), a Storyline can be considered as a piece of artwork where events are transformed "into a story by *telling* them" (Carr, 1986, p. 124). Relying on Bal's (1997) defin tion of narrative texts, a text where "an agent relates ('tells') a story in a particular medium, such as language, imagery, sound, buildings, or a combination thereof" (p. 5). The concrete content of a *story* is constituted by certain elements and their relationship. Following Chatman (1978), this chapter distinguishes between *events*; describing the actions and happenings in a narrative, and *existents*; consisting of the characters and the settings. Depending on the structure and relation among these elements, the story can according to Bal (1997) "produce the effect desired, be this convincing, moving, disgusting, or aesthetic" (p. 7). With this as the point of departure we will in the following, with the use of theory of narratives and TSA, present and elaborate the four main pedagogical and organising features of a Storyline: thematic framework, events, existents and subject loops (see figu e 1). Each of the four features comprises specific didactical potentials which are also further developed and explored in the chapters in this anthology.

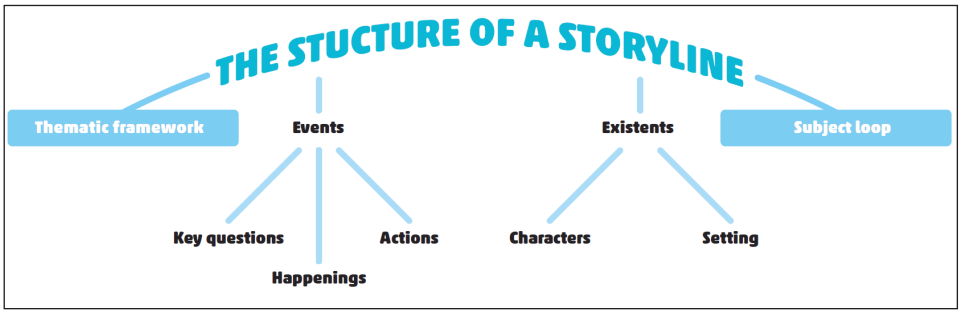

Fig. 1: Main pedagogical and organising features of a Storyline

What is a Storyline: Pedagogical and Organising Features

Thematic Framework

In the context of teacher education, a Storyline is always based on a specific topic or subject matter that lets student teachers perform and achieve learning goals, including social goals. It might be curricular focus, such as science, language or the arts (Falkenberg, Håkonsson, & Claesdotter, 2004; Harkness, 2007; Omand, 2014), or more generic pedagogical goals such as learning TSA as such and how to conduct a Storyline (Karlsen, Lockhart-Pedersen, & Bjørnstad, 2019). To construct a Storyline within the specific topic, a *thematic framework* is created, something that is regarded as the first of the pedagogical and organising features of TSA. Based on the concrete content of the story; the events and the existents (cf. Chatman, 1978), always anchored at a certain time and place (cf. Bal, 1997, p. 7), the thematic framework of TSA evolves. The thematic framework is grounded in desirable knowledge, skills, and competencies that ought to be taught and practised, i.e. what the student teachers would comprehend as a result of the teaching and learning event (Hofmann, 2007). It must be added, that although the main topic for the thematic framework is a specific subject matter such as sustainability, a Storyline is always interdisciplinary; involving a combination of two or more subjects including most often aesthetic subjects. In addition, and irrespective of theme, the participants will be challenged in certain ways: cooperative learning, social learning and often transformative learning. Cooperative learning used in a Storyline to facilitate high quality group work is explored in more depth in chapter 1.

The Events in a Storyline – Triggering Activities and Happenings

In TSA the story is moved forward through events. Events are incidents and happenings that give rise to contextual learning for the student teachers. In narrative theory, events are understood as a process or alteration, and defined as "the transition from one state to another state, caused or experienced by actors" (Bal, 1997, p. 182). In a Storyline, it is characters who cause and/or experience the events. The chosen events can relate to each other in a series of ways according to Bal (1997, p. 193). Of most relevance to TSA are the structural principles relating to time and place. One way of structuring events is

Fig. 2: An example of visual representation of a "location" in a Storyline named The Fairy-tale Forest, implemented at Østfold University Collage. Photo: Kristine Høeg Karlsen.

thus to place the events against a passage of time. Some events, according to Bal (1997) "can occur at the same time, others succeed one another" (p. 194). An event, according to Bal (1997) always "takes up *time*" (p. 7). Another way of classifying events is to base the formation of the structure on the location; the place where the event is played out (ibid., p. 194). All events occur in "a certain place that actually exists (Amsterdam) or an imaginary place (C.S. Lewis' Narnia)" (ibid, p. 7). In TSA the story could be located in a hotel, at a school, at home, at the circus or a shop (Brandford, 2007, p. 170). Events in a Storyline aim to trigger planned or unplanned activities such as a birthday, a wedding, accident or a burglary (Brandford, 2007, p. 170). In line with Bal (1997), it is important to structure events in a Storyline, in a way that allows for enough time for creative thinking and problem solving. In Storyline, the student teachers will work in groups of 4–5 individuals, and they need to discuss different solutions to a problem and eventually to agree upon a solution to conduct. It is the student teachers who are encouraged to take responsibility for moving on to the next step or to another event. It is important to note that some incidents according to Harkness (2007) will be of a generic kind, that may be applied in any topic, whilst others is more specific in relation to the explored topic. A skilful teacher will use both kinds of incidents in order to facilitate a variety of learning outcome, directed by the curriculum.

Key questions: In order to structure the learning process during a Storyline, key questions are used (Brandford, 2019, p. 69). Key questions, according to Brandford (2019), "develop the sequence of the Storyline and encourage activities which allow the learners to demonstrate their knowledge and understanding and support the development of skills as well as their ideas" (p. 70). Key questions are an essential aspect

of TSA in that they take their point of departure in the students' preconceptions and current knowledge. Examples of key questions in a Storyline could be according to Omand (2020) "What might happen if…?' 'Is this true in all cases?' 'What do you think about…? 'What other solutions might there be?'" (chapter 14). In this manner, key questions are part of the student-centred approach to TSA (Harkness, 2007). In addition, key questions are open questions that elicit maximum feedback that the teacher can use for developing and expanding the Storyline and the students' possibilities for learning (Omand, 2017).

The questions are usually asked in the class in a way that allows each student to reflect individually first, then talk to a friend or a small group and finally express all ideas and understandings of a phenomenon that have been revealed. This enables a variety of thoughts which can be further reflected upon and be discussed throughout the Storyline. One of the benefits with key questions, as we comprehend it, lies in the process of reflection. Students reflect in several, often gradual, ways, and on different levels, i) Individual reflective thinking – to put their thoughts into words, ii) Reflection with peers – to share thoughts with one another, iii) Reflection in class – to disclose thoughts in public and iv) Following up the collective reflections – to use the experiences of a community. Working with key questions is a profound dialogical pedagogy with democratic ideals (Falkenberg & Håkonsson, 2004), thus the link to social-cultural learning theories is evident. Vygotsky (1986) advocates social interaction in order for students to develop knowledge and skills. Key questions are further developed in chapter 14, written by Carol Omand (cf. Omand, 2020).

Existents in a Storyline – the Characters and the Setting

In a Storyline, student teachers are invited to construct a setting and create imaginary characters used when exploring events and incidents (cf. Harkness, 2007). The use of characters marks out TSA from other pedagogical approaches, and the characters play a significant role throughout the Storyline work. In narrative theory, actors, that are not only humans, are the "agents that perform action" (Bal, 1997, p. 5). To act, is by Bal (1997) defined as "to cause or to experience an event" (ibid.). In any story, the actors are important, and in TSA the participants take on fictional roles such as family members, friends, job colleagues (Brandford, 2007, p. 170). In TSA, several activities play crucial roles when the student teachers develop their characters and the setting of the story. In the following we will shortly describe the use of drama and the creation of visual representations.

One way of supporting the student teachers to take on the fictional roles, and further to set the characters into a place and time, is to use drama (McNaughton, 2007). Drama, according to McNaughton (2007) adds an extra dimension to Storyline. This means to not only look at the character from the outside, but to actually bring the characters to life and to be the character. Rather than imagine how people lived, drama allows for playing the events out. While being in character, student teachers are allowed to think freely and express their views without risking revealing their personal identity. Drama thus, according to McNaughton (2007) allows the learner "a high degree

Fig. 3:
One of the creatures made, from *The Fairy-Tale Forest Storyline* discussed in chapter 8. Photo: Kristine Høeg Karlsen.

of challenge, while at the same time offering a low level of threat" (p. 152). Following the work of Heathcote (1991) the teacher's role is to create the conditions that support learners taking on roles as experts in an imaginary enterprise. Heathcote (1991) stresses that the purpose is not to get totally involved in the imagined world, but to bear in mind both the fi tional world and the reality of the learning context (see also Boal, 1995).

Second, the characters and the setting (context) are made visible to all participants through the use of visual representations, which also have a profound role in TSA. Visual representations give tangible shape to the co-actions, which in turn help the learners to create a collective picture and frames the story. Bamford (2006) stresses the importance of visual literacy skills, and she claims that contemporary culture is more and more dependent on the visual because of its ability to communicate instantaneously and comprehensively. As with all literacy forms, visual literacy contains problem solving and critical thinking. In addition to improve the learner's art skills, their imaginative ability, creativity and social understanding will increase, Bamford (2006) claims. One concrete example of a visual representation in TSA, is the frieze. The frieze, according to Lindberg (2000, p. 45), is a combination of a model, poster and wall that aim to visualise the setting or context in the story. It can, like the created characters, be two- or three dimensional. It is built up purposefully, so it can grow and change in line with the story (ibid., p. 45). Visual representations and props are further explored in chapter 4, in the work of Karlsen, Motzfeldt, Pilskog, Rasmussen and Halstvedt (2020).

A specific didactic tool – The subject loops

Finally, in TSA, it is important to stress that not all the activities are part of the ongoing story, some are 'outside' (cf. Fauskanger, 2002, p. 319). On some occasions during the learning process, the story takes a short break. When the story is put on hold, there is time for the learners to explore a subject matter in greater depth. This is by Fauskanger (2002, p. 319) referred to as a "subject loop", defined as a point in the process "when the class, or parts of the class, take a break in the narrative itself to immerse themselves in a subject that is relevant to the story" (ibid., authors' translations). Fauskanger (2002) stresses, by quoting Bolstad (2001, p. 74–75) that the subject loops are important to add depth in the matter of the subject, because a story without depth, can risk only becoming an entertaining story. Nevertheless, the subject loops must according to Fauskanger (2002, p. 319) be used with care. It is an advantage that the subject loops are relatively short, and if there is not too much time between each time the class concentrates on the story. The danger is that the class loses cohesion in the story, and if this happens, then the students can then lose interest and involvement in the Storyline.

Obstacles and keys to effective use of TSA in Teacher Education

The use of TSA in teacher education, has the potential to give student teachers an opportunity to experience and explore for themselves, how stories can give rise to valuable knowledge. Teaching through stories, thus represents an innovative and creative approach to teaching and learning. If we want teachers in school to use alternative approaches, the teacher education according to Emo and Emo (2016) "should see innovation and creativity modelled in their university programmes" (p. 241). In this anthology, we claim that TSA can be used by teacher educators to bridge the gap between theory and practice (Solstad, 2006). This implies that TSA gives student teachers an opportunity to develop knowledge within the area of pedagogical theories on a didactic level, while at the same time experiencing the approach in practice on campus. Examples of educational theories that have had an impact on TSA are progressive and pragmatic views (Dewey, 2009), sociocultural and social constructive perspectives (Vygotsky, 1978; 1986) and critical pedagogy (Freire, 2005). Consequently, teaching and learning in TSA is based on an *active and reflective approach* (Dewey, 2009). Further, TSA is taught within the framework of *problem-solving* and is appropriately scaffolded (Bruner, 1996; Holton & Clarke, 2006; Simons & Klein, 2007), where *cooperative learning* is required (Lave & Wenger, 1991; Vygotsky, 1978). Finally in TSA, the learner is given an opportunity to demonstrate learning in *authentic* manner (Bruner, 1996). To recapitulate, Storyline in teacher education, has two main functions; to exemplify how to conduct a pedagogical method to immerse and strengthen students' understanding of learning theories while actually "living" them. In this manner, experiencing TSA in teacher education develops the student teachers' professional identity (cf. Tsybulsky & Muchnik-Rozanov, 2019, p. 48), which is a major concern in teacher education. Although there are few direct advantages for bringing TSA into teacher education, there are obstacles to effective use of such a narrative approach.

First, in contrast to Storyline in the school context, Storyline in teacher education includes a meta-perspective (cf. Karlsen et al. 2019). To fl p between being in the actual story and refl cting on how TSA will work as a didactic approach in school, can be challenging. Based on the research on TSA, among the most challenging aspects appears to be the entering into the narrative and taking on the fi tional roles (Emo, 2010; Karlsen et al., 2019; Leming, 2016). Whilst pupils in school can fully experience the story and be in character, student teachers simultaneously have to refl ct on the use of, for instance, *fictional characters* in an educational setting, and thus they are forced to step in and out of the story and the role. One way to overcome this obstacle is to explicitly and concurrently work with both levels, by asking, for example: What does my character think of this event and what do I, as a student teacher, think of the event? In line with Vygotsky (1986), this is a way of creating meaning of the world by exploring it through language. Another technique to help the student teachers to move between these levels is to let them journalise (Gunnels, 1997; Ibarreta & McLeod, 2004; Walker, 2006). Keeping a diary or logbook in both a structured and unstructured way, may bring sense to the student's thoughts, feelings and experiences. Ibarreta and McLeod (2004) reveal through their study of student teacher practice, that students reported enlarged capabilities in critical thinking and self-directed learning by keeping a journal. Th s critical thinking involved the ability to analyse substantial events that occurred during practice. By integrating course literature, theory and knowledge gained from previous lectures in the course, the students were encouraged to explore in depth signifi ant features. Structured guidelines, following Bruner (1996), are required if such a method is used.

Secondly, to succeed with the practical implementation with TSA, the learning process needs to be carefully planned, as the narrative structure, the features, and the relation among them, can be rather complex. The complexity increases as the subject learning is not only 'school subjects' but also pedagogy (didactics). Those new to TSA need to experience and practise the pedagogical and organising features to be able to apply Storyline in their own teaching. Quoting Falkenberg (2016),

> "You cannot learn to use the Storyline approach from merely listening to a lecture or reading an article. At best, it gives you some information about it, which probably generates interest to learn more. Watching a film or visiting a class working with a Storyline project is fi e but not quite enough either. Participating, discussing the matter with others or even better practicing and working with it our self are obviously more effective ways of learning. The best way might well be when after having learnt it, you *teach* it to others" (p. 221).

If student teachers are to really learn TSA, it is not enough to hear about the approach, or even experience the approach on campus. Following Falkenberg (2016), they need to practice teaching TSA in order to translate campus-based knowledge to "real-world" situations. One place to start, could be to include TSA in the student teachers' placement practice in the schools. Th s is also what Pridham, O'Mallon and Prain (2012) refer to as applied learning. Applied learning is regarded as central for preparing students for prospective workplaces (Harteis & Gruber, 2004; Pridham et al., 2012). In our case,

the applied learning activity, i.e. the Storyline, is embedded as part of a campus-based course, in order to be applied in the school setting. Applied learning is alleged to be effici t as it entails practical directives (Dalton, 2004). However, facilitating Storyline in teacher education, is not meant to be applied in an instrumental manner. Teaching and learning is complex and cannot just be imitated, but needs to be embodied by the student teachers, which takes time. Integrating TSA in teacher education, can start a process that will continue over time. Conducting a Storyline can be compared to being a captain of a boat; you have to steer the journey, lead the crew, govern the process and enjoy it! Thus, it requires quite different qualities than traditional lecture work. On the other hand, once a Storyline is planned the hard work is done and can be used and developed over and over again.

To summarise, TSA in the context of teacher education may help student teachers to develop an awareness of how teaching and learning structured by components of a story can provide them with an alternative framework that bridges the gap between theory and practice (cf. Solstad, 2006). Teaching and learning in teacher education, must provide student teachers with a high level of practical relevance to enable them to acquire the platform they need for their future profession to adapt successfully to the evolving educational environment. Taught with care, TSA is an example of one such approach teacher educators can use to make teaching and learning on campus matter for student teachers on a practical and didactic level.

The content and organisation of the book

TSA can be theoretically supported in different ways and has been over the years. That is not to say that anything goes, but to acknowledge that TSA is inclined to move forward and to be progressive, which in turn allows for integrating evolving pedagogy. Additionally, Storyline is a multifaceted approach which recognises various pedagogical perspectives and learning theories. The different features of the Storyline may hence have various pedagogical and didactical affiliations, which will be acknowledged through the chapters of the anthology. The overall aim of this anthology is thus to contribute new knowledge on Storyline, in the context of teacher education. The intention is to advance TSA and take certain aspects of the approach further, drawing both on previous literature and the foundations of Storyline, and on recent studies and enhanced theoretical perspectives. In the following, the content and structure of the anthology is outlined.

Strand one: Learning *about* Storyline

The anthology has a threefold structure, building on three different tracks. The fi st strand focuses on developing the teacher profession: Learning *about* Storyline as a pedagogical approach, and concerns a broad variety of content fi lds, interdisciplinary and collaboration within teacher education. In the fi st chapter of the anthology, titled, *Cooperative Learning: The Power of Positive Interdependence in Storyline*, Kristine Høeg Karlsen, Heidi Remberg Høeg and Ellen Høeg, based on observation and in depth

group interviews with second year student teachers at a Norwegian University College, aim to contribute comprehensive knowledge on how cooperative learning is perceived by student teachers with regards to ensuring high quality peer relationships in a Storyline. Th s chapter has undergone a peer-review process.

Transformative learning and identity building is the core in Chapter 2 titled, *Transformative Learning and Identity Building through Aesthetic Experiences in a Storyline*. In this chapter, Margaretha Häggström and Katharina Dahlbäck based on a Swedish educational context, focus on the notions of multimodality and aesthetic experiences with the aim of developing knowledge on aesthetics' impact on learning in a Storyline, three dimensions on learning: content, incentive and environment is integrated. Th s chapter has undergone a peer-review process.

In Chapter 3, titled, *Using Storyline in Teacher Education: 'I am now the teacher I always believed I wanted to be'*, Wendy Emo, Ken Emo, Lynda Venhuizen, Renae Ekstrand and Kathryn Penrod, as a part of an action research, explore how university teacher educators within an American perspective perceive affective learning as part of TSA. Th s chapter highlights unanticipated reactions, such as enjoyment of teachers' own lessons, and a change from focusing on education's how to why. Th s chapter has undergone a peer-review process.

In Chapter 4, we learn about imaginative "make-believe" experiences activated through the use of a Storyline focusing on sustainability. In the chapter, titled, *An Exploration of the "Mimetic Aspects" of Storyline Used as a Creative and Imaginative Approach to Teaching and Learning in Teacher Education,* Kristine Høeg Karlsen, Gitte Cecilie Motzfeldt, Hanne Eik Pilskog, Adrian Kristinsønn Rasmussen and Camilla Blikstad Halstvedt, contribute with a new perspective on the mimetic aspects of Storyline, with value for the student teachers' professional development. The study is set in a Norwegian context and based on audio recordings and group interviews with student teachers. Th s chapter has undergone a peer-review process.

The implementation of the notion and signifi ance of multimodality in a language course for Swedish primary school teachers is described in Chapter 5, by Margaretha Häggström, Eva-Lena Happstadius, Anna Udén. Th s chapter, titled, *Storyline: A Way to Understand Multimodality in a Learning Context and Teacher Education, in Theory and Practice*, aims at elucidating how Storyline in teacher education can bridge the gap between theory and practice. The text is based on a five-year long practice of implementing a Storyline, in which the student teachers are building working teams for multimodal language teaching and learning. The authors suggest that supervising TSA in parallel with teaching the notion of multimodality is a fruitful way of integrating theory and practice.

Again, from an American perspective, Wendy Emo and Ken Emo explore how Storyline affects teachers, students and families in Chapter 6. Th s chapter, titled, *How Does Teaching with Storyline Affect Teachers, Students and Families?,* shows the effects that Storyline has on teachers, the incentives for using TSA and how it might influence teachers' work. One of the results of the study is that, although awkward tensions between vision and reality (experienced by both the teachers and the principal) were discovered, they found that Storyline allowed teachers to develop their full potential

through using their creativity, curiosity, and intellectual exploration. The study is based on qualitative interviews and has undertaken a blind review process.

Finally, Doris Kocher from a German perspective, captures in Chapter 7 how foreign language learning could be carried out in a motivating and effective way. Her chapter, titled, *Storyline: Why? What? How? The Storyline Approach in Teacher Education,* is based on three action research case studies, in which she studied the outcome of a language teaching methodology course she had designed for teacher education. In this course, the topic was both language and pedagogy, where the goal was to develop language skills and at the same time learn how and why Storyline could be implemented in foreign language classes at school. The chapter has undergone a blind review process.

Strand two: Learning *through* Storyline

In the second strand TSA is used as a vehicle for other learning: Learning a topic *through* Storyline. In the following chapters the studies address various kinds of subject specific outcomes of TSA such as the learning of mathematical content knowledge, sustainability and aesthetic learning. In Chapter 8, *The Fairy-Tale Forest: Developing Pedagogical Content Knowledge for Teaching Primary School Mathematics in The Scottish Storyline Approach,* Kristine Høeg Karlsen, Stein A. Berggren, Ali Ludvigsen, and Ragnhild Louise Næsje, discuss how mathematical pedagogical content knowledge is developed by fi st year Norwegian student teachers in a cross-curricular Storyline focusing on fairy tales, including the three subjects: mathematics, Norwegian and pedagogy. In the study it becomes evident that the student teachers encountered entirely novel ways of learning mathematics through TSA. Th s chapter has undergone a peer-review process.

In Chapter 9, titled, *Take Action! Encountering Disorienting Dilemmas in Order to Include the Other-than-Human World – an Act of Sustainable Thinking,* we can read about a student teacher who uses TSA to design a pedagogical approach with the aim of enhancing pupils' ecological literacy. The chapter, written by Margaretha Häggström and Linus Djurstedt, builds on a one-year long participatory action research study, including TSA in a primary school. The role of the teacher for successful processes is addressed, and that teacher flex bility and open-mindedness are crucial for student agency. Th s chapter has undergone a peer-review process.

Building on on-going research on TSA in teacher education, Sharon Ahlquist discusses from a Swedish perspective how Storyline may facilitate second language teaching in Chapter 10, *Using The Storyline Approach to Integrate Cognition and Emotion in Second Language Education.* She illustrates how TSA may facilitate a range of contents, meet different educational demands and fulfil several goals at the same time, and stresses the need for in-depth knowledge on how Meta Storylines can be implemented in teacher education. Th s chapter has undergone a peer-review process.

In Chapter 11, *Storyline and Motivation. An Action Research Case Study*, Peter J. Mitchell elaborates on motivation and its impact on students' learning processes through Storyline work. Motivation is crucial to learning processes, and through an action research design, Mitchell argues that TSA motivates learners in both intrinsic and extrinsic ways. One reason for this, according to this study, is that Storyline enables

increased student ownership of learning. The chapter has undergone a blind review process.

In Chapter 12, *Making Sense of Sustainable Development*, Marit Storhaug and Siv Eie, deliberate how TSA can be a substantial part of a student teacher's repertoire, while learning about sustainable living in parallel with practice-oriented teaching on campus. The Storyline-project discussed is based on what they call the need for a reorientation of teaching practice, together with teaching and learning for sustainable futures. The Storyline was included in a course in social science, and the result shows that the learning processes can be characterised as "double un-locking", as a reciprocal movement between content knowledge and students. The chapter reveals how TSA promoted student teachers' knowledge of sustainability issues. Th s chapter has undergone a peer-review process.

The last chapter of this strand, Chapter 13, *Being in the Moment – An Investigation of the Aesthetic Learning Processes in a Storyline* by Gunhild Bjørnstad and Solveig Toft contributes with comprehensive knowledge on how Aesthetic Learning Processes are generated through Storyline activities. The purpose of this chapter is to disclose different kinds of aesthetic competences that enhance through TSA, and which competences need explicit additional evolved aesthetic content education. The authors elucidate the importance of learning the basics of art in order to use art effici tly. Th s chapter has undergone a peer-review process.

Strand 3: Learning *in* Storyline

The third and fi al strand puts an emphasis on contributing with knowledge aiming to develop The Storyline Approach: Learning *in* Storyline. Th s strand starts with Chapter 14, *The Importance of Effective Questioning on Learning Processes in a Storyline,* by Scottish Carol Omand who has over forty years' experience in working with TSA. Omand emphasises that questioning is fundamental in TSA, as in teaching and learning, not least because of its dialogical methodology. In this chapter Omand also stresses that teachers' ability to create and use effective questioning is connected to how teacher education supports student teachers in developing such skills. Further, we learn that key questions are not just any questions, but thoroughly developed, modulated and adjusted to the specific theme and circumstances. The chapter draws on both theories supported by TSA and Omand's own experience of TSA throughout the years.

Ulf Schwänke from a German perspective addresses the risk of using Storyline as an instrument of manipulation, in Chapter 15, titled, *Storyline and Ideology: How to Avoid Manipulation in Teaching.* Schwänke, who is a former exchange lecturer at Jordanhill College of Education in Glasgow, has for more than 30 years now been practising and developing Storyline. In this chapter he confronts concerns about whether TSA may be used to indoctrinate learners. The chapter starts with distinguishing between manipulation and influence and continues by treating critical issues throughout the text. Schwänke demonstrates, step by step, how TSA has proved to empower the learner, actively supporting learners to become free citizens.

The next two chapters, Chapter 16 by Anna-Lena Østern and Chapter 17 by Diana Ellis, discuss critical and challenging issues that can arise when implementing TSA as part of educational practices. These chapters describe practical implementations of Storyline from a design point of view and explore how teaching Storyline makes a change in the learning process. Østern, in her chapter, *Artistry in Storyline Pedagogy. Aesthetic Educational Design as Part of Deep Teaching and Learning,* elaborates on how artistry may be enhanced through TSA, and how artistry can be a vehicle for deep learning. She explores seven features of aesthetic educational design, which involves a performative, enquiry-based approach, including embodiment, and affective as well as sensory learning opportunities. Th s chapter has undergone a peer-review process.

Diana Ellis from a Scottish perspective describes a three-year long project, in which five Global Storylines were developed in her chapter, *From Acting to Action. Transformative Learning for Sustainability through Global Storylines.* The chapter focuses on how teachers can be supported and empowered to use TSA through a professional learning programme. Educational drama and sustainability were central aspects of these Storylines, and Diana Ellis refl cts on and argues that the participants extend and deepen their emotional response to the explored issues, included in the Storyline.

In Chapter 18, *How digital tools can be used in Storyline,* Ellen Romstad presents her own refl ctions on TSA in the digital era and the digital competence as part of essential 21st century skills. The chapter reveals several digital platforms that can be used for creating, for example, Storyline characters. Romstad points out that teachers need professional competence for using a digital Storyline, which calls for enhanced supplementary training.

The fi al chapter of the anthology is Kristine Høeg Karlsen and Virginia Lockhart-Pedersen's Chapter 19, *Story-based Cross-Curricular Teaching and Learning: A Systematic Mapping of the Research Literature on The Scottish Storyline Approach.* As the title states, this chapter presents a comprehensive systematic mapping of the research publications on TSA. The purpose of this study is to understand and provide critique to the growing body of literature on TSA, and thus to derive an evidence-based framework for this particular approach to direct future research efforts. Th s chapter has undergone a peer-review process.

In conclusion, it must be noted that each fin shed chapter, before it was included in the anthology, was moulded, shaped, and honed during the long process of dialogue between authors, co-authors, editors and peer reviewers[2] to all of whom we are immeasurably grateful. The 14 peer-reviewed publications aim to present new and verifiable fi dings and have all been subjected to a blind review process with varied peer-reviewers selected for each and every chapter. It is important to emphasise that the review process has been *blind,* where neither the peer reviewer(s) nor the editors have connection to the author(s). The remaining five chapters (Chapter 5, 14, 15, 17 and 18) have been included to give a more complete perspective on the Storyline Approach. They represent practical applications of the approach written by practitioners, some of

2 A a total of 19 blind peer-reviewers have been included in the peer-reviewed process of this anthology.

whose experience in initial teacher education, delivering training, writing Storylines, authoring books, international consultancy and visionary thinking spans five decades. Drawing on educational theory and their own specialisms, these chapters have also been subjected to the same rigorous scrutiny, reworking, revision, and feedback from the co-authors and editors of the anthology. The ultimate responsibility for the content of all chapters lies, nevertheless, with the contributors.

We would like to give special thanks to John MacDonald, who has done an incredible job of copy-editing and proofreading all the chapters in the anthology. His critical attention to detail, thoroughness and comprehensive expertise have enhanced the chapters and given cohesion and consistency of style appropriate to the anthology. Finally, we must thank Arnstein Hjelde, Director of Research at The Department of Education, Østfold University College, and the Dean of the Faculty of Education at Østfold University College who has helped us to realise the project through fi ancial support to Kristine Høeg Karlsen and to Waxmann. Without this support, the project would not have been possible.

It was our initial intention to capture the diversity of practice and thinking on The Storyline Approach and we are proud of our achievement, encouraged and enthused by the early feedback. The enduring objective of this anthology is to guide and facilitate teacher educators, school teachers, student teachers, as well as school leaders and school owners to use The Storyline Approach. Furthermore, the aim is to facilitate researchers to explore this innovative and student-active approach to learning – research that will provide knowledge that can be used to improve Storyline and bridge the gap between research and practice within this particular fi ld. Everyone interested in cross-curricular, creative and topic-based learning will potentially fi d this anthology enlightening. Th s anthology is not the end, but, as we have seen in so many of the chapters, the starting point for renewed research, discussion, debate, participation and dissemination of Storyline.

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Strand 1

Image from the Storyline *Where good and evil forces fight for power* which shows the boxes that the students made for storytelling. Photo: Kristine Høeg Karlsen.

Chapter 1

Cooperative Learning: The Power of Positive Interdependence in Storyline

Kristine Høeg Karlsen, Heidi Remberg Høeg and Ellen Høeg

Abstract. Th s chapter examines student teachers' experience regarding cooperative learning which was set up for a Storyline. The data consist of group interviews with a total of 22 students, along with the passive participatory observation of three student groups working with Storyline. The study uses a qualitative, exploratory and interpretive approach to the data analysis. The analysis indicates that the students considered cooperative learning, as the group work was structured in this Storyline, to be valuable for the perception of i) Depth in academic learning, ii) Emotional binding, and iii) Shared responsibility. However, difficulties that might hinder high quality relationships were detected in relation to time pressure and the complementary roles. The study concludes that, although The Storyline Approach offers a good framework and structure for experiencing high-quality group working, suffici t time must be set aside to carry out the cooperative processes initiated by a Storyline.

Keywords: Student teachers; learning; group work.

Introduction

Students in higher education learn more when they are actively involved in their education process (Bonwell & Eison, 1991; Abercrombie, Hushman & Carbonneau, 2019). But, facilitating student activity can be challenging at a time when the level of diversity amongst students and student population numbers in higher education are increasing (Masika & Jones, 2016; OCEF, 2018). From a global perspective, education institutions are facing ever greater demands to improve student learning and demonstrate the effectiveness of their higher education programmes (O'Flaherty & Phillips, 2015). According to Johnson & Johnson (2008), one strategy that educators in higher education can use to alter the role of students from passive to active is to facilitate *cooperative learning* (p. 29). In cooperative learning, students work "in small groups to achieve a shared set of goals relating to academic assignments" (ibid.). Numerous studies have documented that cooperative approaches to learning used in higher education increase academic achievement for students compared with traditional whole-class teaching methods (Erbil & Kocabaş, 2017; Johnson, Johnson, & Smith, 2007; Slavin, 1996, 2013). However, implementing cooperative learning in an appropriate manner can be challenging, and studies have proved that higher education students fi d group work difficult (Hamilton & O'Dwyer, 2018). Th s may be because the students do not possess all the knowledge they need from primary and secondary school in order to succeed with cooperative learning in higher education (Le, Janssen & Wubbels, 2018, p 110).

Th s study focuses on cooperative learning used in a Storyline as part of a teacher education course in a medium-sized university in South-eastern Norway, involving second-year students on a primary and lower secondary teacher education course covering grades 5–10. The Storyline Approach (TSA)[1] can facilitate the *effective* use of cooperative learning, "as the story format and character involvement spark mutual interest in exploring and resolving issues" (Stevahn & McGuire, 2017, p. 321). The aim of the Storyline was to provide a setting where the students themselves could experience and learn about cooperative learning, and thus increase their knowledge and skills needed when planning for high quality group work for pupils as future professionals.

Internationally, extensive research has been conducted into cooperative learning over the past three decades. Primary and lower secondary school forms the context for the majority of these studies, which amongst other things focus on *the teacher's use and implementation* of cooperative learning in their own teaching (see Baloche & Brody, 2017; Dyson, Colby, & Barratt, 2016; Emmer & Gerwels, 2002; Taylor, Thomas, Penuel & Sullivan, 2019; van Leeuwen & Janssen, 2019; Veenman, Kenter, & Post, 2000), on the various *impacts* of cooperative learning on achievement and/or performance (García-Almeida & Cabrera-Nuez, 2020; Johnson & Johnson, 2002; Köse, Şahin, Ergü, & Gezer, 2010; Palomares-Montero & Chisvert-Tarazona, 2016), and on the pupils' *reactions and/or preferences* to cooperative learning (Ellison, Boykin, Tyler, & Dillihunt, 2005; Veenman et al., 2000). Using the teaching training course as a context, many studies also focus on the student teachers' *attitudes and experiences* of cooperative learning (Hornby, 2009; Kimmelmann & Lang, 2019; Raath & Hay, 2019), whilst others present *theoretical foundations and explanations* regarding how cooperative learning can be integrated within teacher education (Buchs, Filippou, Pulfrey & Volpé, 2017; Johnson & Johnson, 2017; Jolliffe & Snaith, 2017), the effects of cooperative learning (Artut & Bal, 2018; Naoe, 2008; Tombak & Altun, 2016), showing the *benefits* of linking teacher and student teacher courses through cooperative learning at university (Kimmelmann & Lang, 2019) and *obstacles* to successful student teachers' cooperation (Le et al., 2017; Opdecam & Everaert, 2018). In a Norwegian and Nordic context, little research has been carried out into cooperative learning (Andreassen, 2010, p. 2), except by Andreassen's meta-analysis which presents a comprehensive overview of the impact of cooperative learning on the teaching of reading, and Hjertaker's more practical contributions, inspired by the Johnson brothers when innovating the method for a Norwegian context (see, Hjertaker, 1990; Hjertaker & Hjertaker, 2019; Høeg & Hjertaker, 2019).

However, few studies address cooperative learning within the framework of TSA. A comprehensive review of the international research literature relating to TSA (see chapter 19, Karlsen & Lockhart-Pedersen, 2020) identifi d just two studies focusing on cooperative learning in a school context. The qualitative study by Stevahn and McGuire (2017) of 19 pre-service teachers examines how Storypath[2] scaffolds the use of cooper-

1 In this chapter we use the abbreviation TSA developed by Karlsen, Lockhart-Pedersen & Bjørnstad (2019a).

2 Stevahn & McGuire (2017) use the term 'Storypath', which is a term introduced by McGuire (1997) as an American adaptation of The Scottish Storyline Approach.

ative learning. They conclude that the method naturally generates positive interdependence among its participants, thereby "scaffolding the efforts of novice teachers to authentically and successfully facilitate cooperative learning" (Stevahn & McGuire, 2017, p. 326). The context of Ahlquist (2019) is Second Language English learning in upper secondary school (age 16–18).She explores how cooperative learning used in a six-week long Storyline based on Michael Grand's fantasy novel *Gone* (2008), affects the pupils' willingness to communicate in groups. One of the core fi dings of this study is that the pupils increased "in their motivation to speak English" (Ahlquist, 2019, p. 387). In general, chapter 19, *A Systematic Mapping of the Research Literature on The Scottish Storyline Approach* (Karlsen & Lockhart-Pedersen, 2020) indicates a strong need for knowledge development both nationally and internationally relating to cooperative learning and TSA, and in particular, more studies within teacher education are required.

In this study, *teacher education* is used as a context and case to investigate how student teachers perceive cooperative learning in a Storyline. The study is part of a larger interdisciplinary research project at Østfold University College, called *The Storyline Approach in Teacher Education*, the aim of which is to investigate TSA from various perspectives, disciplines, educational levels and methodologies. In this study, *Storyline* is defi ed as "an integrated approach that draws subjects together creating links across the curriculum" (Harkness, 2007, p. 20) in ways that creates "a meaningful partnership for learning" (ibid.). The following research question formed the starting point for data acquisition and analysis:

> How do second-year primary and lower secondary student teachers perceive cooperative learning as it was implemented with regards to ensuring high-quality peer relationships in TSA?

Initially, we use an expansive defin tion of cooperative learning as "the instructional use of small groups so that students work together to maximize their own and each other's learning" (Johnson, Johnson & Smith, 2014, p. 87). What thus distinguishes cooperative learning from other, less structured, forms of group work, is that they exhibit "positive interdependence" (Millis, 2014, p. 141), which means that students are given "a vested reason to work together" (ibid.).

The remainder of the chapter is structured in the following way: Following the introduction, *part 2* gives an account of the theoretical framework. Johnson & Johnson's theory (1991) of cooperative learning is placed here in a pragmatic constructivist Deweyan learning perspective (Dewey, 1916). The cooperative work in TSA thus forms the context and framework for the research, and where education is understood as a social and democratic project (Johnson & Johnson, 1991, p. 73). *Part 3* describes the context of the study, where the focus is placed on how the Storyline sequence was planned and executed in order to make the Storyline work cooperatively. Th s is followed by a description of the data acquisition strategies and analysis in *part 4*. In *part 5* the results of the study are presented and discussed along with the theory of cooperative learning before the chapter concludes with some fi al remarks.

Theoretical framework

The social and democratic conception of Dewey has directly influenced the development of theories of cooperative learning (Sharan, 2010, p. 301). Dewey (1916) believes that education must be human first and professional second, and that all subject matter is social in nature and that any curriculum and implementation must embody the democratic ideology (pp. 136f.). According to Johnson and Johnson (1991), Dewey argued that "if humans are to learn to live cooperatively, they must experience the living process of cooperation in schools (p. 19). The *nature* of the cooperative work is thus essential for students' learning, and merely placing students in groups (having them sit side-by-side) to facilitate cooperative work does not "mean that high-quality peer relationships will result and that learning will be maximized" (ibid., p. 35). How the students come to interact with their peers within the group process, is according to Johnson and Johnson (1991) determined by "the type of interdependence structured among students" (p. 30). In high-quality peer relationships, as caring for each other increases,

> "so do feelings of personal responsibility to do one's share of the work, willingness to take on difficult tasks, motivation and persistence in working towards goal achievement, and willingness to endure pain and frustration on behalf of the group" (Johnson & Johnson, 1991, p. 48).

An important element in all Storyline projects is cooperative learning (Ahlquist, 2019; Kocher, 2016). The learning is thus organised in the form of small *working groups* where the students "negotiate task solution, help each other with their presentations and feel safe" (Kocher, 2016, p. 172). A key premise for high-quality cooperation is that the way in which the goals that members of a group work towards are structured, is important in determining how the group members interact (Johnson, 2003, p. 936). The premise is based on Deutsch (1949; 1962), who structures three patterns of interaction amongst individuals in a group based on three types of social interdependency: positive, negative and no interdependency. When a positive correlation exists between the goal attainment of each individual group member, *positive interdependence* is deemed to have arisen within the group, i.e. the individuals "perceive that they can attain their goals if and only if the other individuals with whom they are cooperatively linked attain their goals" (Johnson, 2003, p. 935). Conversely, *negative social interdependency* exists when there is a negative interaction pattern between the group members, i.e. the individual group members perceive that they can only achieve the goal "if and only if the other individuals with whom they are competitively linked fail to obtain their goals" (ibid.). Finally, if there is no link between the goal attainment of each individual and that of others in a group, there is *no interdependence* at all (ibid.).

Positive interdependence, therefore, describes an interaction pattern where the group members are linked to each other in ways which offer the best learning outcome, where each individual's contribution benefits the group as a whole (Johnson & Johnson, 1991, p. 127). Such an interaction pattern is characterised by the group members: striving for mutual benefits (which benefit all group members), sharing a common fate (they all gain or lose), performance is mutually caused (mutual responsibility and obligation),

shared group identity (based on membership of the group), increased self-efficacy and empowerment (confide ce that everyone will exert effort, and that they will succeed), and joint celebrations based on mutual respect and appreciation (ibid., pp. 127–128). There are many different ways of structuring teaching in ways that aim to contribute to the creation of interdependence. Based on Johnson & Johnson (ibid., pp. 62–77), four procedures are elaborated below (illustrated in figu e 1).

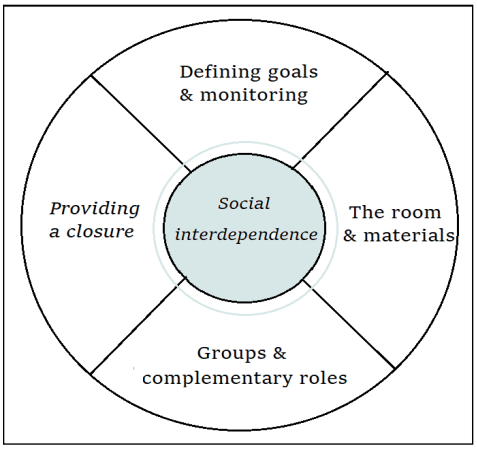


Fig. 1:
A model of structuring social interdependence, based on Johnson & Johnson (1991, p. 62–77)

Defining goals and monitoring

Defini g common goals which ensure that students care about each other during the learning process can help to create interdependency within the group. There are two types of objectives which must be defi ed: academic objectives and collaborative skills objectives (ibid., 1991, p. 62). The objectives must be communicated to the students (ibid., p. 68), along with an explanation as to which theories apply to the task, i.e. the properties or characteristics which defi e success (Johnson & Johnson, 1991; Sadler, 1987). The criteria must also be structured in a way that ensures mutual social dependency. During learning, the teacher must monitor the students' behaviour and work, and provide the necessary assistance (Johnson & Johnson, 1991, pp. 71f.). The teacher can also offer a group reward, e.g. when the group meets a certain criterion of excellence (ibid., p. 69).

Organising the room and materials

The way in which the room is organised has an impact on the signals that are sent to the students concerning the type of behaviour that is expected (Johnson & Johnson, 1991, p. 66). In cooperative learning, the students must sit suffici tly close to each other to enable them to speak to each other without being disturbed by other groups. It is important that the students sit face-to-face and that they are in eye contact. The materials must be placed ready on the table, and all the members of the group must be

able to see them. The groups must be sufficiently far from each other to minimise noise levels between them.

Determining groups and defining roles

According to Johnson and Johnson (1991), a group is "not truly cooperative if members are 'slackers' who let others do all the work" (p. 69). The size of the group is of some importance as regards the work in cooperative learning. Johnson and Johnson (1991) recommend between two and six members. At the same time, they also state that the more members a group has, the broader the range of expertise (and abilities), but this must be set against the skills that the students possess as regards cooperation. In principle, the lower the number of members, the lower the level of competence the students have in interacting cooperatively. Positive interdependency can also be accomplished through the use of complementary and interconnected roles (ibid., p. 67). Linked to each role, various responsibilities are defined which must be fulfilled in order for the group to work effectively. These roles are; summariser, checker, accuracy coach, elaboration-seeker, research-runner, recorder, encourager and observer (see Johnson & Johnson, 1991, p. 67 for an explanation of these roles).

Providing for closure

There are two types of activity which must be summarised (ibid., 1991, p. 75). Firstly, the students must summarise what they have learned. This can be done in the groups or as a whole class, where major points are summarised, and the students are allowed to ask questions. It is then essential that the various groups evaluate how well the group functioned according to the various roles: "What was done well and what could be improved?" (ibid., pp. 75f.). According to Johnson & Johnson (1991), group work must be "enjoyable, lively and pleasant experiences. If no one is having fun, something is wrong" (p. 76). Evaluation within the groups must be based on an agenda which addresses questions that the group members must answer (ibid.). One way of doing this could, for example, be for each group to write down (and document) two things that they did really well and one thing that they could do better (ibid.). Each group member thus has two types of tasks during the process of cooperative learning: a) helping to complete the task successfully, and b) contributing to good collaboration (ibid.).

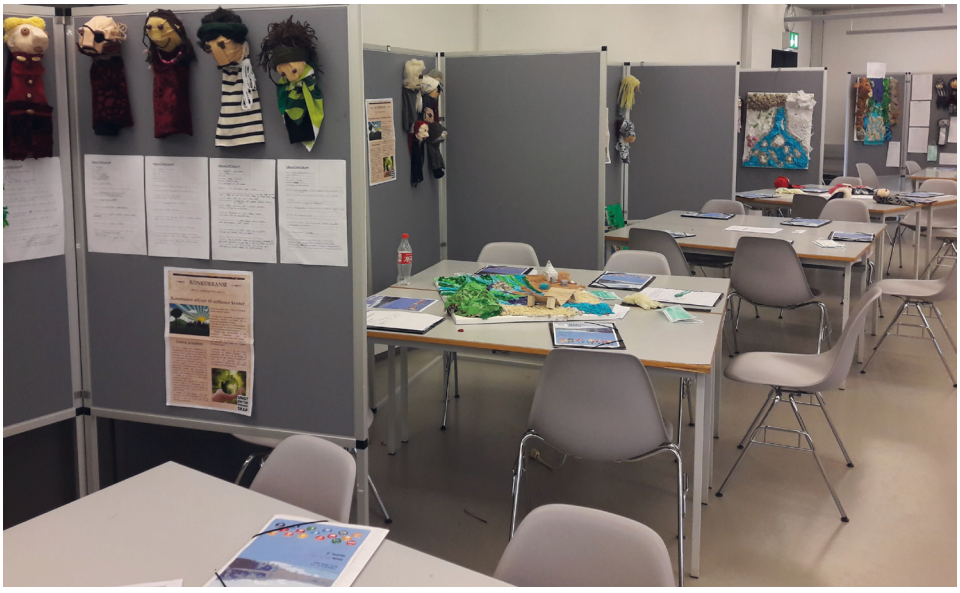
The context of the research: An implemented Storyline in teacher education

A total of 60 student teachers preparing to teach grades 5–10 participated in the Storyline that took place over 1.5 weeks of the fourth term. The Storyline focused on sustainable development and was driven forward by eight key questions and included six events and 24 activities. The action in the Storyline took place on a present-day river delta under the following title, *The Norwegian River Delta*. In the following, we describe

the elements in TSA which were specially designed to contribute to high-quality peer cooperation based on what had been done before, during and upon conclusion of the learning process. For a more thorough and holistic description of the various events and activities in the Storyline that took place, see Table 1 chapter 4 *An Exploration of the "mimetic aspects"* (Karlsen, Motzfeldt, Pilskog, Rasmussen & Halstvedt, 2020).

Ahead of the Storyline

The process of planning "The Norwegian River Delta" began no less than a year before it was implemented. Parallel to the development of the story itself (the line, events and activities), the group composition, rooms and use of materials were carefully planned. The students were organised in multidisciplinary groups with as broad a range of expertise and, hopefully, abilities as possible, as this would be an advantage for the tasks they were to perform. Each group, 12 in total, consisted of five students, each with different subjects and subject combinations (insofar as possible). Based on literature on the fi ld and the teacher educators' experiences from previous Storylines, it was assumed that very few students had any previous experience of cooperative learning. In line with Johnson and Johnson (1991) the groups created were therefore not to be too large and unmanageable, as this would have required very socially skilled students in order to make the work cooperative (p. 64). Because many whole-class events take place during a Storyline, it was desirable to have all groups in the same room. The largest room on campus was booked, to give space between the group tables, and in addition partition walls were erected between the groups. Th s, to reduce noise levels and create a "room-within-the-room". Picture 1 gives an insight into the way the room was organised.



Img. 1: The organisation of the classroom using partition walls in order to minimise noise levels between the groups. Credits: Kristine Høeg Karlsen.

During the Storyline

One of the first things to happen in the Storyline (i.e. event 1, activity 3, table 1, chapter 4) was that the students had to draw up a group contract on a separate sheet of paper which had been placed on their table. The contract was to contain 3–4 rules which were formulated in a positive way, and everyone had to sign the contract. A couple of examples of the rules which were formulated are: "We will have a positive attitude towards other people's ideas" and "In the event of disagreement, the majority will decide". In event 2 (activity 10), a 15-minute long "subject loop" took place (Paulsen, 1999, p. 188) concerning cooperative learning (cf. Johnson & Johnson, 1991, p. 67). As part of this subject loop, the students were assigned complementary roles as secretary, checker, timer and encourager (two students shared this role), based on Høeg and Hjertaker (2019, p. 109). The students had to collaborate in order to determine the roles that the various members were to have. For example, the secretary was to be the one with the "longest little finger", so to find out who was to be secretary, the students had to compare the lengths of their little fingers. The shortest one was to be checker, and so on. The intention was to assign the roles in an arbitrary way. To eliminate the possibility of unintentional bias, either by gender or physical attributes, the criteria for selection varied each day, making the roles rotate among the students for the duration of the Storyline.

For the student teachers to be able to accomplish tasks related to the six main events in *The Norwegian River Delta Storyline* (i.e. table 1, chapter 4, Karlsen et al., 2020), the criteria for success were presented and explained both orally and in writing to the students. All the materials that they would need at any one time were placed either on the group tables or on a long table in the middle of the room, so that all the group members would have easy access to them, regardless of whether the materials consisted of *instruments* for the sound orchestra or *rubber & netting* (see picture 2).

Conclusion of the Storyline

Finally, the students had to join a two-fold closure, as Johnson and Johnson (1991) recommend, as part of event 6. First, the groups were broken up and the social objectives evaluated using small pieces of paper, on which members gave each of the other members two pieces of written feedback (i.e. activity 23, table 1 in chapter 4). The pieces of paper were then placed in envelopes and distributed. The academic objectives were then evaluated using an academic test on sustainable development. A reward was given to the group which developed the best product (based on the criteria), as determined by a jury consisting of teacher educators and a representative from the organisation Young Entrepreneurship (i.e. activity 22, table 1, 4). The Storyline was concluded with an on-campus public exhibition of the deltas, puppets and concepts, which lasted three weeks (i.e. activity 24).

Img. 2: Examples of materials which were prepared for the students. The two pictures on the left, how how the instruments are arranged in the middle of the classroom ready for activity 2 (sound orchestra). The two pictures on the right side, show two examples of materials the students could use when making the friezes (activity 5). Credits: Kristine Høeg Karlsen.

Research design and methodology

The study is based on a qualitative research design for data collection and analysis. Both focus group interviews (cf. Kvale & Brinkman, 2015, p. 179) and *participant observation* (cf. Bryman, 2016, p. 423) were conducted. Triangulating data from a number of sources can help to "collect a richer and stronger array of evidence than can be accomplished by any single method alone" (Yin, 2018, p 63).

A total of seven semi-structured face-to-face focus group interviews were conducted, involving a total of 22 students. The students were recruited using *purposeful sampling* (Patton, 2002, pp. 272–273), where 22 of the 60 students who had taken part in the Storyline were randomly chosen to participate in an interview after the learning programme. 20 of the 22 students agreed to participate, while two opted not to be

Img. 3: Examples of inhabitants living in the Norwegian River Delta, created by the students working in the groups. The picture is taken at the exhibition. Photo: Kristine Høeg Karlsen

interviewed[3]. Two of the 38 students who were not selected voluntarily agreed to be interviewed, which meant that we ended up with a total of 22 students. Ahead of the Storyline, the students were given verbal information about the research project. Written information was also provided explaining the purpose of the study, data storage, possible consequences of the study and data protection aspects, along with a written declaration of consent, which enabled informed agreement to participate in the study to be obtained from the students. The study is covered by the Norwegian Personal Data Act (Section 31)and has therefore been registered with and approved by the Norwegian Centre for Research Data (2019). Data was processed in accordance with the applicable data protection rules (cf. The Norwegian National Research Ethics committees, NESH, 2016) and in line with our institution's own guidelines for research data (Østfold university college, 2019). In accordance with Kvale and Brinkman (2015), ethical issues were carefully considered throughout the study (p. 97). Th s applies for example to the safeguarding of confide tiality, which according to the NESH (2016) included both access restriction and the assurance of confide tiality to the informants participating in the study (see Fossheim, 2015), which in this case comprised student teachers.

The interview guide, covering four topics and a total of 37 questions, was designed to be used in various studies within the research project, *The Storyline Approach in*

3 One had to withdraw because of work commitments, while the other did not give a reason.

Teacher Education. In our study, interview questions related to cooperative learning (topic 3) and the student teachers' reflections on using TSA in schools (topic 4) was of most interest. Topic 1 and 2 comprise students' overall experiences with TSA, and the aesthetic and imaginative aspects of Storyline. One example of an interview question could be,

> I am now going to ask you questions relating to the way in which the teaching and learning was structured by using complementary roles as timer, encourager, checker, and so on. What were your first thoughts when you were introduced to these tasks?

The interviews were conducted in small group rooms on campus. They were recorded and each lasted an average of one hour. It would have been better to transcribe the interviews ourselves, but this would have been very time-consuming (Bryman, 2016, p. 481). For this reason, an experienced transcriber transcribed the recordings using a *literary style* (cf. Kvale & Brinkman, 2015, p. 212) based on clear guidelines. The transcriptions were then checked against the recordings and found to be adequate for our research purposes. The material which is used as quotations in the chapter was transcribed by the researchers themselves.

In addition to the interviews, three (of the 12) Storyline groups were observed, covering a total of 14 students. The observations give us an insight into the students' behaviour; gestures, facial expressions, glances, what is being said and how, and what they do and how they do it. The focus during the observation process was therefore placed on "directly deducible characteristics associated with the situation, i.e. the participants' interaction with the material and the social environment" (Rautaskoski, 2012, pp. 82–83). As observations will always be value-laden (subjective), it is, according to Yin (2018), a common procedure "for increasing the reliability of observational evidence […] to have more than a single observer making an observation" (p. 123).In this study, two observers were used, who are members of the teaching staff in the Storyline, and as they take a slightly withdrawn role *during* the observation, passive participatory observations were made. The observation was based on an observation form which defined the key dimensions which were to be observed. The observations in this study had *one* focus, which was to identify how the students made use of the complementary roles they were assigned (cf. Johnson & Johnson, 1991, p. 67). The situation being observed was recorded using *scratch notes* (Bryman, 2016, p. 443), where the notes were written down as accurately and as quickly as possible by hand in a logbook *during* the observation process itself. The notes were then rewritten and tabulated on a PC in order to prepare the observations for analysis. A total of 7½ hours of observations were made. An example from one of the observations is the following text extract. *O* indicates that it is the observer speaking, whilst *T, C* and *S* stand for timer, checker and secretary respectively. The times of observation is marked on the left (or example 11:04),

11:04 **O** reads out question two. Repeats it because not everyone quite took it all in. **C** summarises an idea and says: "We can use that; that was a good idea!" **T** points out that they must make sure they stick to the task. **C** "It could be fun to use the mountain (?)". **S** "Yes, we can do that" […]

11:12 **C** reads out question 3 (takes the sheet from **O**). Someone has an idea, and **O** says, "Yes, we'll do that – create a problem and fix t" and laughs.

During the study, an open descriptive, interpretive and inductive approach was used for the data analysis grounded in the two basic analytical procedures of Strauss and Corbin (1990): the making of comparisons (pp. 84f.), and the act of asking questions (p. 62). The two procedures were used in accordance with Strauss and Corbin (1990) to give precision and specific ty to the arising concepts in the process of categorising data in the open coding process (pp. 62f.). The analysis can be divided into three phases. In the fi st phase, which Strauss and Corbin refer to as the *conceptualisation* (ibid., p. 63), raw data was coded line-by-line using comparisons and questions (e.g. what is this about, what is being described, is the statement the same as or different from another statement?). During this phase, the material was manually coded in a Word document. Separate events which represent a phenomenon were named. An example is the following statement from Interview H, where the column on the left in Table 1 indicates who of the group members is speaking: 1–2 are students, while *I* stands for interviewer. The column on the right indicates the code which has been assigned to the raw data (cf. transcribed interview).

Tab. 1: Conceptualising Data

Student	Raw Data	Code
2:	I was very surprised we managed to cover all the subjects, so I think it was a lot of fun and good. We got input from everywhere […]	Input from different subject fi lds
I:	Can you give a specific ex mple where you needed input from another subject fi ld?	
2:	Well, when we looked at what a river delta was, for example, we had explanations from the perspectives of social science and natural science, along with a general explanation of the words from the Norwegian, so we had everything except physical education […]	Different explanations from different subject fi lds
1:	As far as we were concerned, it was fun to see; we also found out that we covered all the subject fi lds and thought it was fun.	Need for different subject fi lds

Th s process resulted in a list of 132 codes in total. The list formed the basis for phase 2 of the analysis, where the codes were systematised into more general categories, a process which Strauss and Corbin (1990) refer to as the actual *categorisation* (p. 65). During this phase, groups of concepts which appeared to concern the same phenomenon were grouped together and given a conceptual and analytical name (ibid., pp. 65, 68). In the above example (Table 1), the three codes were grouped together under the category of *breadth of expertise*. Th s procedure thus reduces the number of units, if the categories according to Strauss and Corbin (1990) "have conceptual power because they are able to pull together around them other groups of concept or subcategories" (p. 65). During

this fi al phase, an effort was made to identify patterns across the categories. Th s is a process where the categories are systematised into three abstract and meaningful themes (cf. Creswell, 2003, p. 193): i) Depth in academic learning: Perspectives and wholeness, ii) Emotional binding: Membership and belonging, and iii) Shared responsibility: Empowerment and commitment. These three themes constitute the results of the study, which are presented in the next part.

Result and discussion

Analysis of the empirical data demonstrates that the students who took part in the Storyline *have* a positive attitude regarding the way in which cooperative learning was used during the process, but some obstacles that hinder cooperative learning were also found. In this section, we will present and discuss in detail the results of the study as an answer to the research questions posed, regarding how second-year primary and lower secondary student teachers perceive cooperative learning the way it was implemented to ensuring high-quality peer relationships through a cross-disciplinary Storyline.

Depth in academic learning: Perspectives and wholeness

The Storyline was set up in such a way that the student teachers had to cooperate in multidisciplinary groups. The analysis indicates that the students experienced that this meant that they could take advantage of each other's expertise and that this offered numerous ways into the academic discussion. They appeared to connect the diversity in expertise with the completion of the task. One student explained that this resulted in,

> excellent dynamics in [the work]; the premises and the framework are in any case there for a varied debate or discussion, and provided people are engaged, which we were, then there will be lots of different input, so it was good (Student 1, Interview C).

Another student states that it was precisely the variation in expertise that led to the work being successful. Expressed as follows,

> In my group, all the subject fi lds you can take in our teacher education programme were [represented]. There were five of us and we covered all five subject fi lds […] As regards the delta we made, there were those who had explained the delta in one way, those who had a social science background, you got to see different perspectives and collectively we were pretty good (Student 2, Interview B).

The group composition thus contributed to the students experiencing wholeness between the subject fi lds. Th s, as one student put it, "did not mean that the mathematics and the science were separate, but that you put things into perspective" (Student 1, Interview H). The students further found that they had to argue for their own point of view during the process, and that the key questions (tasks) were formulated in such a way that they had to cooperate in order to identify good solutions. An example from the observation data can be used as an illustration,

10:30 **O** (observer): "What do you think?" – reads out what she has written. **T** (timer), who is sitting opposite, moves around the table and sits next to her. **T** continues to fi d pictures/film for the report, **O** continues to write. They continually make brief comments to each other, lots of "yes" and looking across at each other. An obviously positive attitude" (observation in group 1, 5/3).

Based on these results, it is clear that TSA, as it was implemented for second-year students on the teacher education course, facilitates a structure for cooperative learning. The students had to collaborate to achieve shared academic objectives, formulated so that the students had to draw on each other's expertise in order to identify appropriate solutions. The multidisciplinary groups, which were carefully planned with the aim of creating social interdependence (cf. Johnson & Johnson, 1991, p. 64), meant that the group members possessed a broad range of academic expertise. Th s helped to ensure that many students experienced good discussions and depth in their learning and gained a richer understanding and new perspectives of the topics they were working on. The analysis further shows that the students challenged each other, and that they had to put a case for their own perspective and thinking, something which according to Johnson and Johnson (1991) characterises a learning-promoting and cooperative student-student relationship (pp. 56f.). As the expertise of each individual group member was an important factor in the success of the task, many students explained that they invested time and energy in the work in order to succeed. We interpret this as an expression of what Johnson and Johnson (1991) defi e as "mutual investment", which describes a positive and high-quality interaction meeting if the group's performances are "perceived to be caused by (i) their own efforts and abilities and (ii) the efforts and abilities of the other group members" (p. 128). That the performance in cooperative learning among the group members are mutually caused, have also been addressed in other studies in the fi ld. Hornby (2009), in their study of third-year Bachelor of Education (B.Ed.), fi ds that individual accountability and positive interdependence are essential to cooperative learning in facilitating superior learning outcomes (p. 167). Further, Kimmelmann and Lang (2019) highlight the importance of building positive interdependence, individual accountability and a sense of community in the group (p. 17). Stevahn & McGuire (2017) show how Storypath by its nature facilitates positive interdependence among pre-service teachers (p. 316).

However, the analysis also shows that the cooperative learning did not work as well for everyone with regard to facilitating depth in the academic learning. Certain elements of the Storyline contributed to dissatisfaction, including short deadlines, too many tasks and general time pressure. At times during the Storyline, a number of tasks had to be performed at the same time, which meant that in many cases the groups had to split themselves up. Short deadlines for individual tasks also contributed to stress. One student said, "… we didn't have enough time, so we just had to run around, fi d-ing things" (Student 3, Interview B). Time pressure is addressed in other studies on cooperative learning as well (see cf. Nattiv et al., 1991), and may affect the depth of the academic and social learning, as, for example, they feel there is neither time for sharing and negotiating opinions, nor establishing the group. Time issues related to cooperative

learning within teacher education need to be further explored in the context of TSA in future studies.

Emotional binding: Membership and belonging

Although the respondents in this study are second-year students on the same grade and programme, the study portfolio was put together in a way which meant that students across subject fi lds did not meet each other very often and for that reason did not know each other well. By participating in the Storyline, they found that the sense of unity across the subject fi lds increased. They explained that this group subdivision gave them a chance to get to know their study colleagues and that they considered this to be a "breath of fresh air". When asked what the best thing about the Storyline was, they all responded that the biggest benefit was the sense of unity and the human aspects of the project. One student expressed it as follows,

> […] working with people I do not normally work with was fun and interesting. You know the people in your class and you know their thought processes, so when you meet new people, the thoughts and socialising are new to some extent (Student 2, Interview A).

Another student refl cted on what she considered to be the most important thing that she learned in this project, mentioning that she was a little surprised. She said,

> […] actually what I thought was fun was that you could meet people you did not already know; you strike up a good chord and work well together. Because I think I always want to be with people I already know, because then I know we will work well together. But I've learned that you do not need to know people and that you can be different and still work well together (Student 1, Interview E).

Almost all the students noted that the collaboration and socialising were the major learning outcomes of the Storyline. TSA could therefore perhaps be said to embody a little of the democratic perspectives of Dewey (1916), where academic material which is presented to students must fi st and foremost be social in nature (p. 136) and structured "to develop social insight and interest" (p. 137). For example, the students used terms such as *enjoyable*, *fun* and *the best thing about the Storyline* when describing the cooperative parts. According to Johnson & Johnson (1991), the group process *must* be "enjoyable, lively, and pleasant" (p. 76); otherwise, something is not right. In other words, the way the cooperative work was structured in this Storyline gave these students some new insights into what makes groups function well (for example, that they can succeed in group work even if they do not cooperate with their *best friend*). There are varied elements in TSA which make the student experience the group work in such manner. Besides group composition, the tasks, the topic of sustainability (which appeared to be affecting many of the students), the face-to-face interaction, and the material available during the learning process, everything carefully planned with the aim of facilitating high-quality group work. Analysis of the interview data demonstrates that the students

especially appreciated the point where the group was disbanded, and they gave each other individual feedback (activity 23). They really enjoyed writing positive feedback to each other and receiving the envelope with the responses from the other members. Because, as one student (in interview D) put it:

O2: I didn't know whether I had done a good job until I got the notes, so I was pleased.

I: Afterwards? So you think it was important the way you broke up the group?

O2: Yes, it was like "Wow, I did a good job?" I was very pleased with the group.

This, together with the joint celebration facilitated closure of the learning process (activity 24), gave the students a feeling of membership, belonging and shared success. We interpret this finding as conveying a feeling of what Johnson and Johnson (1991) describe as being emotionally bound together with other group members in the team, which characterises positive interdependent cooperation (p. 128). This expresses the perception of a *shared identity*, which "binds members together emotionally" (ibid.). That cooperative learning promotes student relationships and has impact on socialisation, confirms what we know from other studies in the field. For example, Watson (1995), who finds that cooperative learning makes the students feel more positive about themselves, and that they also become more competent and skilful when interacting with one another (p. 209). Another study, Johnson and Johnson (2017), discovers that students behave less apathetically and disruptively, stay more on-task, and that they are more pleased, not only with their own success, but also about their groupmates' success, when cooperative learning is used (pp. 288, 290).

Nevertheless, the analysis also shows that a few students considered the group identity to be weak, because not enough time had been set aside to "establish the group", as one student put it, "You need a little time to establish the group, to find a group identity first, before you are launched into all those tasks" (Student 2, Interview C). They believed that if they had been more closely bound to the group members, this would have made a positive contribution to the academic work. In this Storyline-project, several of the student teachers did not know each other beforehand due to different study portfolios. Investing time building relationships in the opening of such a Storyline-project may be important for making the groups work well, in particular for students who need a while to commit to sharing their thoughts and feelings openly.

Shared responsibility: Empowerment and commitment

The way this Storyline was planned and executed, made the students experience a new type of distribution of responsibility in the group work. The complementary roles, in particular, assisted the students to delegate the responsibility which made the work more efficient. Because, as one student put it: "There's no discussion in the group about who collects [materials]. The secretary does it. End of discussion. It saves time" (Student 2, Interview E). The students also found that these roles implied that they could "let go" a little, for example that they could give up some of the responsibilities, because

they knew that the task would be done properly by other members in the group, illustrated by the following statement,

> It's probably a good way of sharing out the role of leader between everyone; so that there isn't one person looking after everything and doing everything, and so that everyone has to contribute in the same way to make sure everything gets done" (Student 2, Interview A).

Some students also seemed to grow into the roles they were allocated; they discovered new sides to themselves and new sides to each other. One student explained what happened when they were assigned their roles,

> What I found most fun was that I was given the role of secretary; even though I'm the fli tiest one around [laughs]. Then when I spoke to the group, everyone looked at me as if they were thinking that I wasn't that type of person. Then I thought: I can be the secretary. It became much more ordered. Much more achievable. Thi gs fell into place; it could have been a disaster if we had not had the roles [laughs] (Student 1,Interview C).

They thus found that one of the major strengths of cooperative learning was that the traditional role of manager in a group is challenged, that "the responsibility is shared between all the group members, and that it is not the same person who has to take primary responsibility each time" (Student 1,Interview B). Here is a short extract from another interview (C), were the students discusses the advantages of allowing students to try out different roles.

3: It's a great way of changing the routines […] It's good to try out different roles, so that you're not always secretary. Try it.

2: I think it would also be good to give the students a chance to fi d out more about who they are. It's possible to give them an 'aha' experience when they are given tasks which they would not normally choose to do themselves.

O: It's like me. I [usually] just delegate the responsibility of secretary to someone else in the group. I also make it fun. But when I was given the role here, I thought "I'm going to try it" and I liked it. Th s would be good at primary and lower secondary school too.

3: As secretary, you gain control over the situation. It's great to experience it and not just be the comedian. To grow into it a bit.

With few exceptions, it must be added that the students agreed that it was good that the roles were allocated *randomly*, as this extract from Interview B shows,

2: I think giving roles to a group in such a random way […], I think that was really good. And perhaps a bit challenging too, for example with someone who is not normally a leader becoming checker, or someone becoming secretary who is not accustomed to it, so that you get forced to do it.

3: There were four strong personalities [in our group], so I just thought "Wow" […] Th s could be exciting because we're all checkers and everyone is a leader. It actually turned out pretty well […] and it worked a lot better than I thought it would.

Based on the analysis, it becomes evident that the students found that the complementary roles which were randomly assigned helped to create structure, delegate responsibility and save time. Some students also believed that the roles challenged them to tackle new areas of responsibility and that it gave them a positive feeling of succeeding in a role (e.g. secretary), which they did not initially believe they could do. We interpret this, the joint effort in the group, to be increasing what Johnson and Johnson (1991) defi e as the *self-efficacy* (p. 128). Cooperative groups, accordingly, thus "empower their members to act by making them feel strong, capable, and committed" (ibid.). Other studies in the fi ld have documented that cooperative learning can facilitate increased self-efficacy and empowerment. For example, Raath and Hay (2019) report from their qualitative study within Education for Sustainable Development, that the students improved in their ability to work cooperatively with their peers, and that they became more motivated and willing to integrate cooperative teaching strategies in their future classes (pp. 73f.). Nattiv et al. (1991) fi ds that preservice teachers appreciated the opportunity for interaction with their fellow students (p. 223).

However, the inquiry also demonstrates that there was some awkwardness concerning the complementary roles. Some of the students found it challenging to take their roles seriously, and in particularly the role of "encourager," partly because they found the role a little strange and/or false. As one student put it: "It was very artific al. Terribly artific al. So we cut it out. It was much better when it came unsolicited from someone who was not the person who had been assigned to do it" (Student 2, Interview H). Other students explain that they saw no reason to use the roles, because the collaboration was working well, or because they found that the roles did not cover all the relevant needs (they needed more roles). In the context of teacher education (and TSA), it might be that other complementary roles are needed, to make this aspect of cooperative learning effective. Although the students were given a mandatory lecture on cooperative learning (activity 10), the students interviewed had no earlier experiences with this method, which may explain why some students struggled to use the roles. Unresolved issues related to roles and delegation of the workload, confi m other studies in the fi ld. For example Le et al. (2018) fi d that that some group members did not make an effort at all when accomplishing the tasks, and that this "free-riding had a negative impact on the learning behaviours of all group members" (p. 110)(see also, Hillkirk, 1991; Nattiv et al., 1991). More research is needed within this fi ld.

Conclusion

In this study, we have examined how primary and lower secondary school student teachers covering grades 5–10 have experienced cooperative learning as a tool for ensuring mutual participation and high-quality relationship in a Storyline. Grounded in

a descriptive and interpretive approach to data analysis (Strauss & Corbin, 1990), the study indicates that students first and foremost consider cooperative learning as part of a Storyline to contribute to depth in academic learning. Throughout the process the students had to more than collaborate in their multidisciplinary groups; they had to listen to others, they had to share their own thoughts, and further argue for their own points of view and, importantly, they had to encourage, support and cajole the weaker or reluctant group members. The students explain having experienced what Johnson and Johnson (1991) define as *mutual investment*, which characterises positive interdependency (p. 127): a perception of being linked together with other group members, and that, in order to succeed, you need all the other members to succeed (ibid.), a belief "that they 'sink or swim together'" (ibid., p. 55).

Secondly, the student teachers describe a feeling of emotional binding. The composition of the groups allowed the students to work with students they did not know beforehand. The experience of the group work let them see their classmates in a different way, and, as one said, it was like a "breath of fresh air". This, together with the individual feedback, the way the groups were disbanded, and the *joint celebration* promoted a feeling of membership, of belonging and shared success. The students describe having perceived what Johnson and Johnson (1991) define as *shared group identity*, which characterises positive interdependency (p. 127): a feeling of being confident in the relationships, belonging and joint success.

Thirdly, the students experienced a feeling of shared responsibility. The complementary roles helped the students delegate responsibility, something that made the work more efficient. They reported a feeling of increased *self-efficacy*, where the members of the group were empowered to take responsibility and to act. When individuals have this perception, there is an expression of positive interdependency (Johnson & Johnson, 1991, p. 127), where the responsibility among members is shared: this helps the students to structure the work, to spread workload among all group members, and to save time (i.e. as they don't need to decide who will do the writing, as this is the secretary's responsibility). An interesting discovery was that most students found the arbitrary distribution of the complementary roles to be very positive, as this gave them an opportunity to develop new skills, freed from responsibilities that they had had in earlier group work, and also to experience joy when they saw members of the group grow into the roles they had been given.

To summarise the findings of this study, we believe there are grounds for claiming that this Storyline offered a framework for student teachers to gain some experience of the power of positive interdependence. As positive interdependence characterises certain patterns of interaction where group members are striving for mutual benefits, have a shared common fate and group identity, where the performance is mutually caused, the self-efficacy is increased, and finally there is a joint celebration based on appreciation and mutual respect (ibid., 1991, pp. 127–128). Nevertheless, the analysis also shows that the cooperative learning did not act as well for everyone with regard to facilitating high-quality group work. Certain elements of TSA contributed to dissatisfaction, including general time pressure (short deadlines and too many tasks), weak

group identity and awkwardness concerning the complementary roles, with the first mentioned being highlighted by the students as being particularly challenging.

Although *The Norwegian Delta Storyline* did provide these student teachers with valuable and new experiences with group work, not enough time was invested for the students to evolve cooperative skills during the Storyline. As cooperative learning as a strategy was unfamiliar to these students beforehand, they apparently had not yet developed the necessary skills to enable them to learn effectively from group work. Students who have never been taught cooperative learning cannot be expected to possess the skills necessary to collaborate effectively (Johnson & Johnson, 1991, p. 146). The most important implication as regards practice, which can be deduced from this study, is that sufficient time must be set aside to carry out good collaboration processes linked to all the tasks and activities which are initiated in a Storyline. The students would benefit greatly from being introduced to cooperative learning prior to a Storyline, so that they are familiar with the method and the complementary roles, and so that they have a chance to develop their own collaborative skills first. Over time, the skills and competence will advance. According to Johnson & Johnson (ibid, p. 146), it is important that students develop collaboration skills, both with regard to the quality of their study work which takes place in groups, and for them to succeed in their future working lives (when most students will have to collaborate).

Taking the obstacles to high quality group work within a Storyline into account, the conclusion of the study is however, that TSA provides a good framework and structure for teaching student teachers to experience high-quality group work and practise cooperative learning. Nevertheless, more research is needed into how cooperative learning can be integrated into TSA in teacher education in general, and related to time issues, weak group identity and complementary roles, in particular.

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Chapter 2

Transformative Learning and Identity Building through Aesthetic Experiences in a Storyline

Margaretha Häggström and Katharina Dahlbäck

Abstract. Th s study takes multimodality, aesthetic experiences and transformative learning as a point of departure and expands analysis to include three dimensions of learning: content, incentive and environment. The aim is to develop knowledge and understanding of aesthetic experience, knowledge and activities in the pedagogical approach of Storyline in teacher education. The study builds on a one-week-long Storyline and examines what the Storyline work means to the student teachers, and what the significance of the aesthetic experiences in this particular Storyline is, according to the student teachers. The data material consists of group interviews and discussions which are analysed through qualitative content analysis. Students' critical refl ctions were shown to be a prerequisite for their learning processes. The students expressed that the Storyline work was both nerve-racking and challenging, but once they had negotiated this obstacle, they felt stronger, more self-confide t, and ready to use aesthetics as teachers in the future.

Keywords: Aesthetic learning, Transformative learning, Aesthetic experience, Storyline

Introduction

Our contemporary state is multimodal; thus, it includes visual, textual, aural, spatial and other resources or *modes*. Th s implies that we compose our messages through a variety of modes in order to communicate (Kress & van Leeuwen, 2001; Jewitt, 2011). Some of the modes are aesthetic modes like visual arts, sound and music, bodily movement and dance. Aesthetic expressions of various kinds pervade more or less all parts of present western societies. We encounter images and jingles from commercials which urge us to consume, we meet external influences that claim to enlighten us and keep us updated regarding current events and we document our own lives through social media. Aesthetic artefacts play signifi ant roles for the development of knowledge in educational settings; thus, aesthetic experiences may offer a learning opportunity, such as identity building (Piaget, 1972; Ziehe, 1982; Drotner, 1991) and transformative learning (Mezirow, 2000; Illeris, 2014; Cranton, 2016), that go beyond a cumulative type of learning. Storyline may offer multimodal and aesthetic didactic opportunities for making teaching and learning meaningful (Karlsen et al., 2018).

Although aesthetic experience is often seen as an "extremely ambiguous notion" without a common understanding of its signifi ance (Shusterman, 2004), we have chosen this notion in order to capitalise on some of the complexity of its meaning and

impact. One dimension of aesthetic experience that we specifically want to examine is the transformational dimension as H. Illeris (2016) defines it:

> The *transformational dimension* of aesthetic experience is connected to active processes of agency and change. It thereby also connects more directly to the concept of *learning* and in particular to Dewey's famous educational credo 'learning by doing' (see e.g. Dewey 1938/1997). (H. Illeris, 2016, p. 155).

H. Illeris also suggests that aesthetic experience is performative, i.e. it involves an active and progressive interaction between sensoric and reflective experiences of creating, and that the learning process is directed at the capability of experiencing, and hence at the competence of knowing how to experience, create and reflect on sensoric involvement with different aesthetically connected phenomena (ibid.). We link the concept of transformative learning to agency, which may lead to opportunities to act in new ways and change identity formation.

In this study, aesthetics are used to understand and discuss sensoric experiences in relation to aesthetic pedagogical teaching and learning tools, in particular how these experiences are articulated by student teachers who have been exposed to the pedagogical approach of Storyline. The aim is to develop knowledge and understanding of aesthetic experience, knowledge and activities in the pedagogical approach of Storyline. The research questions are: 1) What does the Storyline mean to the students and for their learning process, and 2) What is the significance of the aesthetic experiences and the aesthetic activities in the Storyline, according to the students? We will examine this empirically through a study on student teachers' experiences of, and opinions about, meeting with aesthetics during a one-week-long Storyline, carried out during their first year of education (2018).

This study's Storyline

This Storyline was included in teacher education for primary school teachers in Gothenburg, Sweden, both as a way to implement the methodology itself as a pedagogical approach, and a way to teach and learn the subject of language development. Multimodality, specifically aesthetic didactic tools, is a core theme in the course in which the Storyline was used. This particular Storyline had a number of episodes established by the teacher educators involved in the course, and was developed by the teacher educators and the students together. In Storyline, episodes are planned in sequences and develop the progression of ideas and the line of the story (Harkness, 2007). These episodes drive the topic forward and work as a narrative in any story, such as books or films. They are also the vehicles for contextualising the learning process (Omand, 2014). This particular Storyline is unfolded through a mini-show where the teacher educators are in character as a TV programme host and guests. This serves as an introduction to Storyline as a pedagogical approach. The starting point of the story is then when a teacher educator enters the classroom as a school principal and greets the student teachers as though they were the school's new staff. The teacher has prepared key questions (Omand, 2017) that will drive the story forward. The students create

teacher teams and their own teacher characters that will be challenged in various ways during the Storyline; for example, they have to design better learning environments for the imaginary school, and plan and conduct a multimodal lesson that will support language development. The teacher orchestrates a staff meeting where an angry parent appears, yelling at the teachers for using play as a teaching method. Key questions play a signifi ant role here as the student teachers have to refl ct, explore, and explain and to express their views and take a stand. All challenges, episodes and incidents include creative and aesthetic work of different kinds, e.g. visual art, music and drama. Before celebrating the end of the Storyline, the student teachers give a presentation about the learning outcome of the Storyline week in an aesthetic and multimodal way.

Theoretical background

In order to enable us to incorporate a compound view on learning, in this study we take the point of departure from K. Illeris's comprehensive understanding of human learning, defi ed as "any process that in living organisms leads to permanent capacity change and which is not solely due to biological maturation or ageing" (Illeris, 2007, p. 3). Th s broad formulation includes an extensive and complex set of processes integrating various conditions. Illeris emphasises two basic processes and three dimensions of learning. The two processes are actively involved in all learning processes. The fi st is the *external interaction process*, a process between the learner and the environment (social, cultural and material), and the other is the *internal psychological process of elaboration and acquisition*. The external interaction process is in progress during all of our waking time, and we are aware of this to varying degrees. Awareness and focusing are important for learning. The internal psychological process involves impulses and influences imbedded in the interaction with the environment. New impulses are connected to previous understandings, knowledge, skills and experiences, and therefore learning, according to Mezirow (2000), is structured in meaning schemes, partly for different content areas and partly for overall perspective. Learning is thus about creating meaning, and, according to Bruner (1996), a *narrative understanding* about oneself, and this understanding is constantly developed and reinterpreted.

As is shown in Figure 1, the two processes move between three aspects, *content, incentive* and *environment*. *Content* relates to what is learned, i.e. knowledge and skills as well as opinions, attitudes, values, behaviour etc. It contributes to building understandings. *Incentive* relates to the mental energy that is necessary for the learning process to occur. It encompasses aspects such as emotions, motivation and intentions. Its function is to ensure a mental balance and to develop a personal sensitivity. *Environment* relates to the external social and material world, which is the general basis for the learning process. The dimensions of content and incentive emanate from impulses originating from the interaction process and are integrated with the internal process of acquisition and elaboration. Thus, the learning content is connected to the incentives in question, that is, what the learning is driven by, e.g. interest, desire or obligations. Consequently, the incentives are influenced by the content.

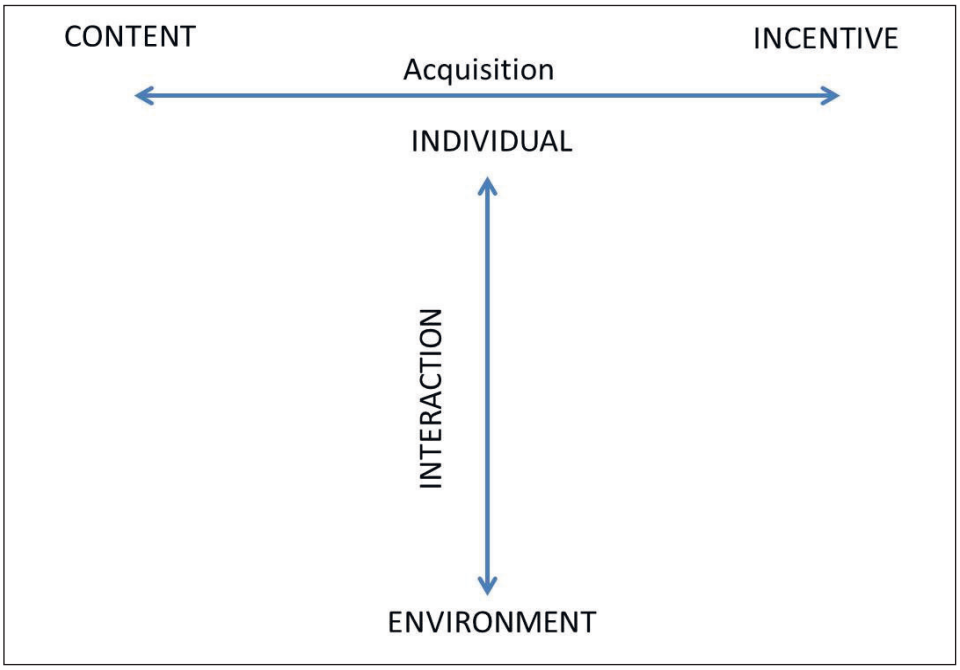


Fig. 1: Processes of learning (K. Illeris, 2009, p. 20)

The signifi ance of Illeris's comprehensive theory of learning is its holistic approach, i.e. the inclusion of personal development, socialisation and qualifi ation. Learning is thereby considered partly as an integrated process between an individual and the environment, and partly as an internal mental access process consisting of the content and the incentive. K. Illeris's model is also based on constructive learning theories, where "it is assumed that the learner him- or herself actively builds up or construes his/her learning as mental structures" (K. Illeris, 2003, p. 401). The structuring may be moulded in different ways.

In this holistic understanding of learning processes, and in relation to Illeris' three dimensions of learning, we would also briefly highlight the impact of affect and embodied experiences. Affect is here understood as an ability to affect and to be affected, and that affects are "trans-individual", which means that affect is collective and intersubjective (Manning, 2010; Massumi, 2015; Kristensen, 2016). Affective *learning* refers to a learner's interests, attitudes and motivations (Gurewitz, 2000). One assumption is that emotional values give rise to actions. Gurewitz emphasises the importance of students' own experiences as a source of knowledge, rather than exclusively "knowledge-based" education, i.e. more traditional fact-based teaching methods.

Aesthetic experience and the transformational dimension

As mentioned in the introduction, we are using H. Illeris's (2016) perspective on aesthetic experiences and in particular the transformational dimension. Th s dimension highlights the activity, agency and change in the interplay of bodily anchored emotions

and reflex ve experiences during the act of making. It also emphasises the ability to experience, which implies a skill in identifying the experience itself and the competence to refl ct on sensoric participation with artwork and diverse aesthetically oriented activities, experiences and happenings. According to H. Illeris, the transformational "potential of aesthetic experiences lies in its productive powers of integration" (ibid., p. 163). H. Illeris highlights two aspects of integration: *the integration of sensuous and reflective aesthetic experiences* and *the integration of reception and production*. In order to examine the aesthetic aspects of a Storyline and how these integrations encourage and influence students' learning and experiences, we utilise K. Illeris's (2003) descriptions of transformative learning. We will then connect the transformative learning to the two basic learning processes (external and internal) described earlier.

The aim of transformative learning is to encourage and motivate critical thinking, not least critical self-refl ction (Mezirow, 2000). The intention is to stimulate refl ctions on the learners' experiences of teaching and learning situations and on their own pre-understandings and beliefs. In turn, this may support changes in attitudes and thinking patterns. In consequence, transformative learning could possibly include learning beyond assimilation and accommodation, that is, it embraces the cognitive, sensitive, social and situated aspects of human learning (K. Illeris, 2014).

In addition, we would argue that when a person is performing an aesthetic activity, the aesthetic experiences have the power to create a feeling of full immersion. Such an energised absorption is known as a state of *flow* (Csikszentmihalyi, 1996). Th s feeling is characterised by losing a sense of time and space. According to Csikszentmihalyi, fl w occurs under three conditions. Firstly, the individual is actively involved in a practice with clear goals. Secondly, the activity has immediate feedback, which allows for adjusting the performance to uphold the feeling of fl w. Thi dly, there has to be a balance between the activity's challenges and the individual's experienced ability to perform the activity at hand.

Aesthetics in this Storyline

In the study's Storyline, there are several aesthetic elements. In the introduction, where the teachers introduce Storyline, there are elements of visual art, film, music and drama. The introduction is important to show the students that the teachers not only talk about aesthetic expressions: they also use them themselves. During the week, the students will be able to work with several of these aesthetic expressions. The aim is that they gain an understanding of how they can use different forms of expression and communication in their future work with pupils' language and knowledge development.

On the fi st day, the students make their own character, a paper doll, with different materials. A large piece of paper is placed on a wall and throughout the week a frieze grows. The students fi st paint a school on the piece of paper. Then they design different representations of rooms for teaching that will benefit pupils' learning. These are placed on the frieze, either as images or in three-dimensional form with different materials. During the week, the students are involved in dramas and role playing where they are challenged to identify with the characters they have created. They also make paper dolls

to represent their characters, and these are added onto the frieze, and after the dramatisation with the angry parent, the students make speech bubbles where their characters express what they think about this incident. The multimodal lessons that the students plan and carry out are supposed to contain different aesthetic expressions and the students can choose how they want to combine modalities such as written and spoken language, visual art, music and so on. In the last assignment, where the students are to give an account of their knowledge and experiences about Storyline, there are opportunities to include visual art, drama, film, dance and music in the presentations. There is no room for teaching *in* the aesthetic subjects during the Storyline, but students are encouraged to use aesthetic expressions as didactic tools throughout the week.

Contextualising the study

Th s study is carried out within the teacher education programme for primary school teachers at the University of Gothenburg in Sweden. Primary school teacher education in Sweden is a four-year full-time programme, regulated by the Swedish Higher Education Authority (UKÄ) on behalf of the Swedish government. The study is conducted in one of the 22 mandatory courses for primary school teachers, namely the fi st course in Swedish language and literature. Th s course differs from most courses in other teacher education programmes at other universities in Sweden through its emphasis on multimodality, including aesthetic modes such as visual art, drama and music, in addition to oral and written aspects of language. The multimodal perspective and creative pedagogical approach in this course relate to the syllabus for the school subject Swedish and to the common curriculum for Swedish compulsory school, which stress the importance of using different pedagogical approaches and practical as well as sensual and aesthetic aspects of teaching (National Agency for Education, 2011).The course, which carries 15 ECTS[1], is called *Language as a communicative resource* (Course Syllabus, 2016), and includes a one-week Storyline that aims at creating teacher teams who have to plan, conduct and analyse lessons that encourage language development based on multimodality.

Data collection procedure and analysis

Th s study takes its point of departure from a survey that aimed to investigate the students' expectations of the upcoming Storyline week, and their pre-understandings of aesthetics. The Storyline was conducted in one class by Author Two. The students were contacted by the second author who also teaches in this particular course. There were six groups (each with four students) in the class and the two groups for this study were randomly chosen simply using 6 numbered tags, folded in a box, with two tags being picked out by one of the students. The eight students agreed to participate in interviews and were informed of the aim of the study. The students gave written consent to partici-

1 ECTS is the European Credit Transfer System, which refers to the amount of credits within a course.

pate. The study follows core ethical principles (The Swedish Research Council). We use fi tional names in order to protect the participants' identities during and after the study.

The survey was answered by 40 of the 59 student teachers on the whole course. Then 24 student teachers (Author Two's class) were asked to keep a logbook during the Storyline week. The two groups of four students that were randomly chosen were interviewed four times; all in all eight group interviews. The class's multimodal group examinations are also part of the data collection. The main part of the data presented in this chapter was produced through the focus-group interviews with four student teachers in each group.

We have chosen focus-group interviews for two reasons. Firstly: a focus group is not just any group, gathered by coincidence. The members of the group are selected for a specific purpose; they are focused on a given topic. Secondly: this approach allows for active and dynamic discussions that include a variety of experiences and understandings (Halkier, 2010; Wibeck, 2010). Focus-group interviews are discussions that are carefully designed in order to acquire views on pre-defi ed subjects in a permissive, friendly environment (Krueger & Casey, 2009). An open and inclusive approach allows participants an opportunity to express their views, to comment on each other's statements and to share their attitudes. The intention with focus-groups is to promote self-refl ction among the participants. Th s requires trust, effort and courage (ibid.). The researcher has to be aware of the affective perspective, and that the members of the group will affect each other (Manning, 2010). It is the interviewer's responsibility to create an atmosphere that is comfortable and relaxed. Th s implies an atmosphere in which all participants feel at ease expressing their views and that the discussion proceeds with no one dominating. One specific feature of focus groups is that they can generate data emanating from the interaction synergy.

The groups had already been assembled at the beginning of the course as working teams and in the Storyline, they represented teacher teams. As it is important that members of a focus group feel comfortable with each other, we considered the pre-existing groups to be appropriate for interviews. The authors monitored one group each during the Storyline week, following pre-determined open-ended questions, 1–2 main questions per interview session, with follow-up questions. An example of a question is: "Can you describe an aesthetic experience during the Storyline week?" Each group interview lasted for 20–40 minutes and was conducted at the university. The interviews were audio recorded and subsequently transcribed verbatim by both authors. We interviewed the students four times during the week. In addition, they recorded a discussion on a topic we had asked them to deliberate on. We therefore have 10 recorded occasions.

As mentioned, the students were asked to keep logbooks, which were included as data production, as a way of representing the students as individuals in addition to the group interviews. Th ee questions guided the student teachers when journalising: 1) What happened today? (kind of activity), 2) What did I feel? (emotions and bodily reaction), and 3) What and how did I learn? These kinds of questions may reveal personal answers that will not be exposed in a group interview. However, Kitzinger (1995) claims that groups may facilitate discussions of sensitive topics since less inhibited members may break the ice and thus encourage shyer members. Using both

Img. 1: Code words were identifi d in the transcriptions, building on students' statements, and categories were then created. Photo: Margaretha Häggström.

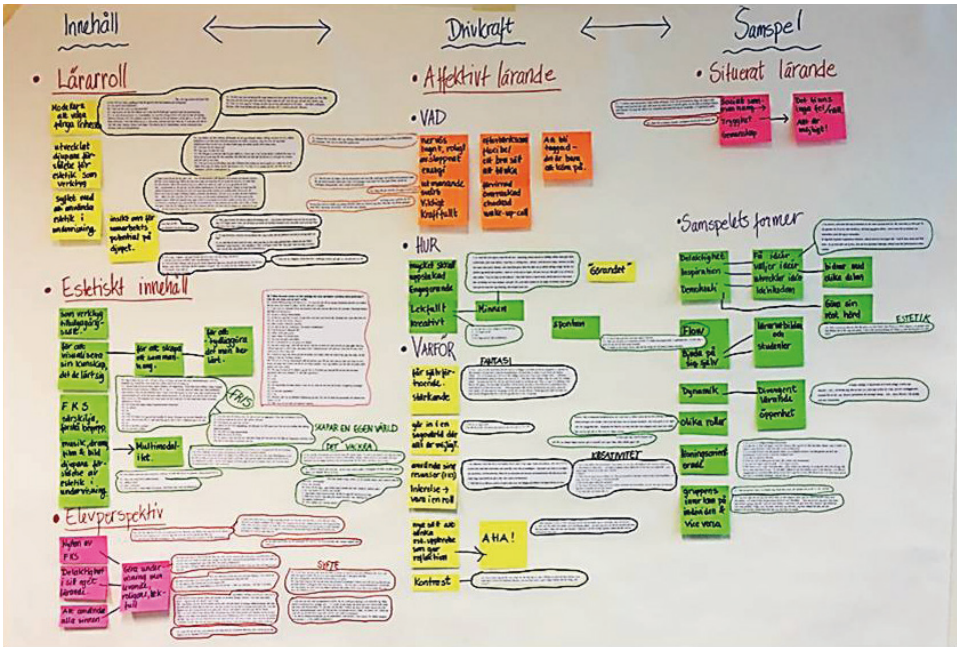
individual-based and group-based empirical data may reveal personal refl ctions and meta-refl ctions. Th ough a combination of methods, a more complex picture of the results might emerge (Brewer & Hunter, 2006; Greene, 2007; Cresswell & Plano Clark, 2011),and the study may be wider and more holistic (Johnson, Onwuegbuzie & Turner, 2007; Cresswell, 2013).

Analysis

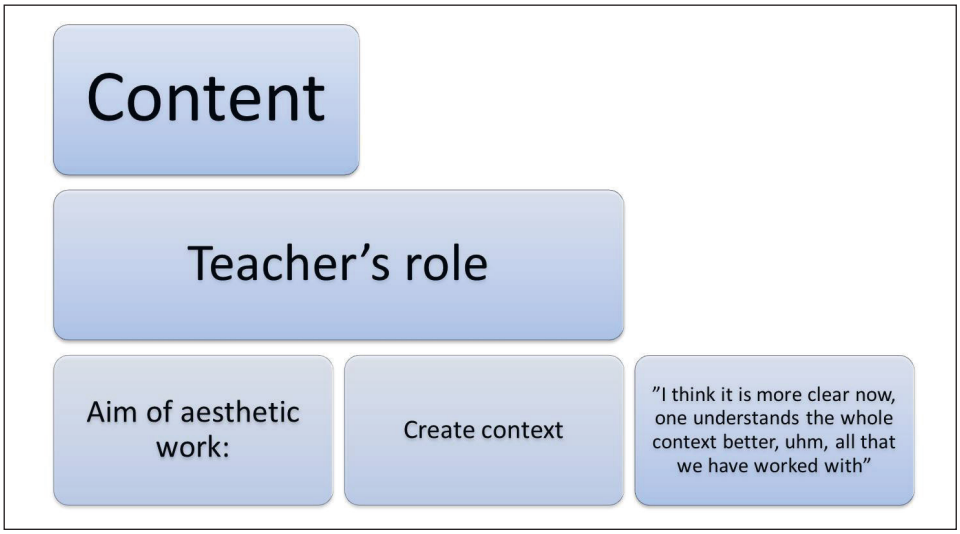
A qualitative content analysis (Schreier, 2012) was used to analyse the empirical data. Following Schreier, we fi st created a coding frame, then tried out and adjusted the coding frame. We then evaluated the trial coding before carrying out the main coding. During this analysis, the two processes and the three dimensions of learning in K. Illeris's learning theory were used. The analysis was carried out in four steps: 1) the interviews were transcribed, 2) code words were identifi d in the transcriptions, building on students' statements relating to, for example, aesthetics, experiences and co-operation 3) students' statements were then divided into different categories and 4) we related the categories to K. Illeris's figu e (Figure 1) and realised that the model was appropriate for the empirical material.

Results

The results are presented in three themes in order to answer the aims and questions of the study. These three themes are *the aesthetic content in the Storyline*, *the student's incentive* and *the aesthetic environment in the Storyline educational context*, which are grounded in the model by K. Illeris, described earlier. We decided to fi st present the result of the analysis, and then connect each theme with a theoretical refl ction.



Img. 2: Students' statements were fi st placed in different categories and then organised in relation to K. Illeris's theoretical framework. Photo: Margaretha Häggström.



Img. 3: Example of analysis, from main category (Content), to Subcategories 1 (Teacher's role), 2 (Aim of aesthetic work) and 3 (Create context), and student's statement.

The aesthetic content in the Storyline

The students' reasoning about the aesthetic content of Storyline consists of three main aspects. The first aspect is the students' thoughts about the teacher's role, the second aspect is about aesthetics and the third aspect is the student teachers' view of pupils' learning.

During the week with Storyline, the students were given the opportunity to think about *the teacher's role*, and what they consider characterises a "good" teacher. Then they each created a fictional character, a teacher in the form of a doll that became their "alter ego". Several students felt it was fruitful to test the role of the teacher using their character and, as one student (June) puts it: "imagine what this character would have thought and done". They also noted that they themselves had preconceptions about different types of teachers: "All the prejudices about these hippy musicians came into my character, as well." Acting as a teacher in different situations based on their character was instructive according to the students. By trying to act as they believed their character would have done: "This fits this person and that's up to her" (June), they also thought about how they would be able to act in their future roles. A common view amongst the students was that they had practised their ability to speak to people and that it was easier to present a task when they acted together in the group and played a role (their character) than if they had been alone as themselves. Interestingly, the students described how, through the work of aesthetic expression during the week, they had gained a deeper understanding of how they can use aesthetics as tools when working as teachers, and that they have understood the purpose of using aesthetics in teaching. As one teacher (Augusta) says, it's important to dare to "show yourself and … to show creativity and imagination, and then the children will be infected with it, I think." All the students emphasised that during the Storyline week, they gained knowledge and understanding of how they can teach from a multimodal perspective. It is obvious that the students appreciated trying out different ways of being teachers, a majority emphasising that it was fun to enter the teacher's role as their character. As teachers, they need to be able to switch between different ways of responding to people, for example colleagues, parents and students: "You may have to be a little more academic towards parents and others but creative and flexible with the children" (April).

The second aspect relates to the students' thoughts about *aesthetics*, and they emphasised the importance of reflecting on their own learning and the role of aesthetics: "Well, going deeper and really experiencing it, that you take it to another dimension in a way. Instead of sitting still and being fed with information, it becomes more alive" (April). Putting the learning into words through aesthetic expressions is an important part of the students' own learning processes. The students' view of aesthetics has changed during the week so that they gain an in-depth understanding of how important it is, and they commented that they themselves will dare to be imaginative and creative, and that they will use aesthetic expressions in their future teaching. For some students, expressing themselves aesthetically has previously been associated with anxiety, but during this week, it has been de-dramatised, mainly because they have been working and being creative together. As regards the aesthetics of Storyline, the students

discussed what it means that the content of the tasks during the Storyline largely consisted of aesthetic expressions. At first, they found it difficult; some students would have liked a template for what to do, for example, when they were to create their characters. April, below, realised that it was good to be challenged:

> Because then I had to develop and I was challenged because it was a bit scary to do it freehand, because, in my opinion, I'm not so good at it. Then I had to challenge myself, and then I did, and then I showed myself that … well … I can.

It also appears that the creative process was important and that the students realised the value of participating in a creative environment. As June put it:

> … before, then you do not know what it's all about and the control person within me feels that: now I do not know what it's about and then it becomes scary, and thinks: oh, what should we do and what's going to happen? But after yesterday and today it's more pleasurable.

The students were positive about making and creating things during the Storyline. They argued that they developed their imagination and creativity, and "it isn't every day you need to do that" (Augusta). They repeatedly emphasised that it is fun to express themselves through aesthetic expressions and that it is a combination, a whole of making and thinking, where they can use all their senses, which also gives a bodily and physical knowledge.

The frieze is an example of how the creative process was visualised. It grew during the week and finally it was a finished product that the students were proud of and where they felt that they had contributed to the whole: "It will be like a canvas; that you start with a completely blank sheet and gradually it emerges, and then it will be a finished painting little by little" (June). Together they have created their own world through the frieze. Drama was also an important element which made the situations in Storyline feel authentic, as one student reported:

> It gives power. This effect is bigger because they went into the role, than just saying that this would be possible. Now we had to taste it, it will be a small taste of what it's like in reality (June).

The students believed that the dramatised events led them to reflect with all their senses about how they themselves would react as teachers in the situation that was conceived. In the final presentations, it became apparent that the aesthetic parts were important as reinforcement in getting a message across. The groups each recorded a movie using drama, images and music: "our whole presentation is sort of aesthetic" (April). Without aesthetic elements, they claim that the presentations would have become boring and flat: "Because then we would just have stood and talked. It would not have been so effective" (June). Now there was humour, playfulness and joy in the presentations, giving them a "stronger power" (June). In this way, the aesthetic expressions helped the students demonstrate their understanding when they presented their knowledge of Storyline.

The third aspect is *the students' view of pupils' learning*. The students emphasised that teaching can be more fun, alive and playful when using aesthetic forms of expression, and that it is important that pupils use all their senses. They consider it easier to raise the pupils' interest, and that subjects may become more fun with multimodal working methods. As an example, they claimed that they themselves had learned a lot during the Storyline week, in a playful, fun way: "Yes. We had fun; you do not think we have learned anything now … but we have!" (June). There are no contradictions between having fun, laughing and learning, according to the students. In order to learn and to remember what you have learned, it may be useful to use different forms of expression, and the majority of the students agreed with the statement: "Both get knowledge and get creative" (April). The students also considered that it is possible to achieve a deeper understanding when all the senses are engaged in learning. June thinks it has been "really benefic al" to "get into this world" where empathy is required, and you must use imagination and creativity. In the same way that the students themselves need to put into words what they have learned, they also argued that it is important that their future pupils can demonstrate their understanding and knowledge through different forms of expression and also refl ct aloud upon what they have learned.

According to Illeris (2007), the content dimension consists of knowledge, understanding and skills. The students emphasised that they have gained knowledge of both Storyline and the aesthetic forms of expression. They have also gained a deeper understanding of the purpose of aesthetic expressions. During the week, they have practised their skills, fi stly by using aesthetic forms of expression and secondly by trying out different teacher roles. The students' statements can be interpreted in terms of transformative learning. The transition that the majority of the students described from having previously had anxiety about expressing themselves aesthetically to seeing themselves in the future as a teacher who can use and dares to use aesthetic expressions is a clear example of transformative learning.

The student's incentive

Incentive – I can, I dare to, I want to, I am allowed to

Incentive includes aspects such as emotions, motivation and intentions. In the students' statements, we have identifi d that incentive is strongly linked to affective learning, i.e. emotional and experiential learning. We also identifi d three key ways of talking about this affective learning which we connect to the didactic questions of what, how and why. What kind of affect do we recognise? How do the experiences of the Storyline's content affect the students? Why should such experiences be included in education? In the following, quotations from the students are presented in relation to these key entries.

What

The students repeatedly mentioned that they were affected by the teacher educators' introductory show. They were surprised in a positive way and inspired by the way the teachers "loosened up" and were very approachable. That made the students happy and excited:

> April: And that they [the teacher educators] got into character, the roles were a bit funny and not these serious teachers [giggle] (…). It felt important, because then it feels like that we become more relaxed…
>
> June: Exactly, it becomes fun and then one can relax…
>
> May: Yeah
>
> June: And then the imagination can be a bit bigger…
>
> April: One can think more…

In the beginning, they were also quite anxious about what the week would bring but once the story started and they became involved, they described that they felt more relaxed and secure. When refl cting, they also said that the Storyline was challenging in different ways. Some found the creative and aesthetic parts challenging and difficult while others said it was when they had to present the work in a dramatic way that it was challenging. "I am not a person who is handy by nature, nor can paint well, so for me it was very challenging" (June).

One event that is mentioned several times is when the angry parent came in, which was described as a surprising and confusing but also powerful and even shocking event that made the students think about their role as teachers, partly as an inspiring way of conducting the Storyline to engage children, partly as what could really happen to them when meeting parents.

> April: They could have just told us: Sometimes, parents get angry, what would you do then? But, instead they became the characters. First, you get a bit shocked … when she [the parent character] came and yelled like that [the others laugh].
>
> May: And it was like reality, and I started to think: What would I say to a parent who is screaming at you, like that? Instead of if they [the teachers] had, as you just said [turning toward April].

How

When the students described how they experienced the Storyline week, they used words such as being absorbed and committed. They also referred to laughing a lot.

> May: One has to identify … one may be a bit childish… I mean, it is quite seldom one does such things nowadays. And I love, I have very good memories of that from school… because it was really fun. Even so, I had this thought: but, we are not learning

> anything, then yes, we are learning … it just fl ws along. Th s is why this is so great when you create and have such a good time, you don't think of it as learning and you do learn.

Why

The students refl cted a lot on the importance of affective experiences in teaching and learning situations. They suggested that it helps self-understanding.

> June: One really gets to develop as a person and maybe use ways of thinking and reasoning that we haven't done before, so it's really challenging, but also developing.

The students also saw that working with aesthetics promoted self-confide ce.

> May: I get a little … gain a little self-confide ce through the feeling of: Oh, how good we are, getting our heads started so quickly and coming up with things.

Another aspect mentioned was being placed in a fairyland where everything is possible. Being in character and being able to use one's resources, such as imagination, creativity and handcrafting, was of signifi ance too. June said: "to enter this world and feel at ease is really useful".

The affective aspects are profound in this theme, and personal commitment is essential to the learning process according to the students. It is clear that interaction plays a crucial role in acquisition and elaboration, as Illeris (2007, 2014) claims. The learning is motivated by the students' interests and desires. The incentive dimension is critical for the students' learning processes. It is also evident that the affective processes are intersubjective, and that the student teacher both affect each other and are affected by one another (Manning, 2010). The aesthetic content in Storyline underpins the students' emotional, sensoric and refl ctive experiences. H. Illeris (2016) argues that these kinds of aesthetic experiences and learning may lead to transformative learning.

The environment in the Storyline educational context

The interviews revealed different forms of interaction that the students considered to be important for their work during the Storyline. The section below describes three parts: fi st cooperation in the groups, then the group interaction regarding ideas and solutions to tasks and fi ally the students' descriptions of democratic aspects of interaction.

The students described *the cooperation in the groups* as both fun and important: "We laughed and had fun […] it clarifi d a lot for you … that cooperation is incredibly important" (June). Augusta also emphasised that the collaboration in the group was inspiring and that it resulted in learning as well as joyfulness: "We had a lot of fun so … at the same time we are talking about something that is very important and which we need to take a stand for". The students said that it was much easier to quickly determine how to work together in the group compared to working alone with a task. They gained confide ce in supporting each other in the group, both when they suggested what they

would do and when they gave a presentation together: "Presenting in groups was much more comfortable than just standing alone; that you can support each other a bit and do it together" (April). Presenting through aesthetic expressions was a challenge for some of the students but it felt better with the group's support: "When you did something you felt uncomfortable with, then it helped that we were in the group" (April). Both interviewed groups emphasised that everyone in the group was dedicated, positive and contributed to the work in the team. In this way, the individuals affected the group and the group affected the individual. Together, students became effici t and contributed different things so that they quickly got started on the various tasks:

> We contribute so many different parts, like our presentation today; someone has contributed very good rhymes, someone a scene we would do, so there are many small streams. So you get exchanges and you learn from each other – in the spirit of Vygotsky. (June)

To a large extent, the students described the importance of the surrounding context, which is an external interaction process. The groups that are formed and the activities that are created in this Storyline provide the prerequisites for the students' learning. The students' participation is shaped around a common, goal-oriented activity and the more active and committed they are, the greater the chance that they learn something signifi ant (K. Illeris, 2007).

The students reported that during the week they came up with more and more *ideas regarding solutions to tasks* by working together with aesthetic expressions. As June put it:

> It's almost like a snowball effect. In the beginning we had a lot of trouble getting started and did not know what to do but then it just rolled on.

July and April described their concerns at the beginning of the week when they did not know what would happen: April: "Oh, what should I do?" July: "Oh, what should we do and what is supposed to happen". Step by step, they felt safe and the work was enjoyable. At fi st, it was about coming up with ideas and sharing them in the group. Deciree describes how they were inspired by each other in the group: "Oh, that's what you can do!" And July stressed that new ways of thinking about something in the group emerged: "You get really different angles." Augusta felt that her imagination was developed by exchanging ideas in the group: "You get imagination from each other; you learn from each other." Ideas that were tried out became fun to implement with the group's support: "Oh, this was also a great idea" (June). Because the students did not know each other so well, it was important to be able to collaborate and choose among the common ideas and then develop the ideas chosen. They described how they inspired and learned from each other and how they challenged each other to "think outside the box" (June). The design of the tasks led them to quickly become solution oriented and eager to start on and develop the ideas they decided on together. There was a sense of fl w amongst the students, and they commented that they did not notice that time went by and just wanted to continue their work:

> April: And then the hours went so fast! We had kind of no control, we forgot to eat … When we left, he place was completely deserted.

> Marcia: We had so much fun too, when something is fun, you just want to continue.

The students did not get much time for the different tasks. They were aware that they had many good ideas that could have been developed, but that they needed to focus on the idea they had decided to work with. Marcia felt that they had been challenged to dare to do something even if they did not have such a long time: "… it does not have to be perfect; dare… a little more". The majority of students agreed that in the group, it was easier to come up with ideas; Augusta said that her imagination worked better in the group than if she had been working alone. The students emphasised the inventiveness in the groups, for example Marcia said:

> Yes, but we get ideas all the time! Like yesterday when we came to think that we would ask about the teachers, we always think, all the time, constantly creating more.

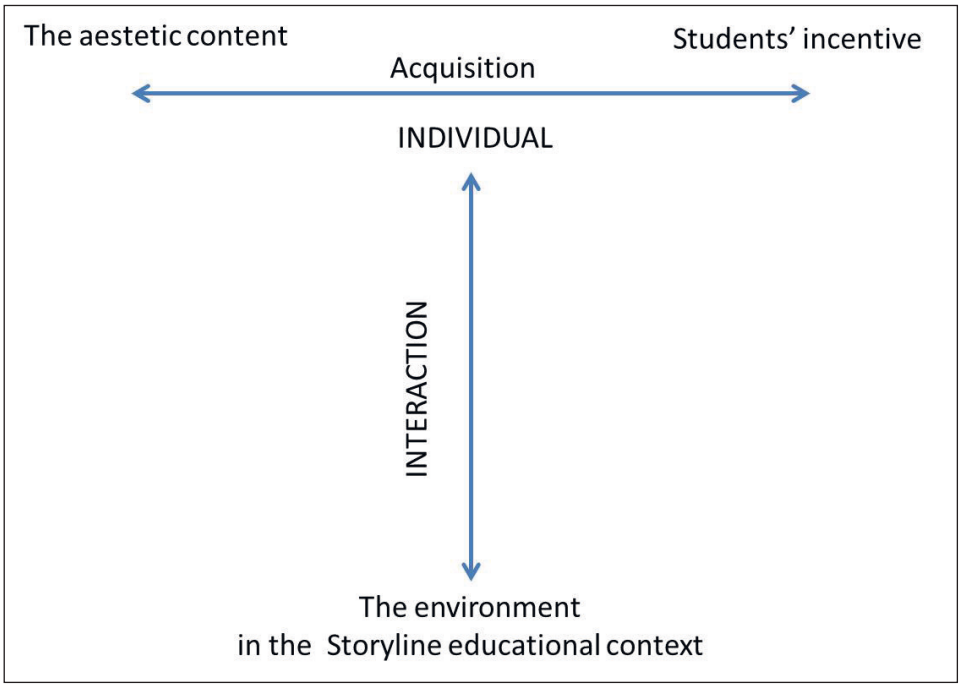
The groups turned out to be of importance for the students' divergent thinking. From the same input, as the students describe, there are many possible outputs, and this can develop creativity and diversity (Illeris, 2007).

Some *democratic aspects* of the cooperation that were observed in the interviews are that it was important for the members in the groups to make their voices heard. June expressed it as follows:

> But also this, that everyone can make their voice heard. There is always someone in a group who fi ds it easier to talk and take up space. In this context, everyone is allowed to make their voice heard.

The students did not feel that there was someone who "ruled over the others" (June), but they could listen to each other and together decide how to work. Both of the groups interviewed refl cted on how it would have been if the cooperation had not worked: "Then it would have been a very difficult week" (May). They did not know each other before and were now supposed to work together in a group for a whole week, which could be "easier said than done" (June). Marcia said that someone in the group could have been negative and then it would not have been fun to put forward ideas. Now it was easy to cooperate: "Yes! Let's do that! It's fun and good and we get what we are going to do" (Marcia). According to Augusta, it is necessary to communicate and to listen to each other in a group: "Well, you think so" and learn to compromise.

The learning situation, and the Storyline itself, shape and influence the learning process. The interaction dimension includes action, communication and cooperation (Illeris, 2007). The students clearly described many aspects of interaction, how they collaborated, communicated and acted when they performed different tasks during the Storyline week. They reported how important the context was for their learning and that they were focused on the activities they performed. In the work with Storyline, they participated in a social context and said that they felt both security and community. Th ough the interaction in the group, students could achieve social integration and



Img. 4: Illeris' model in relation to the Storyline in this study.

develop their sociality. Self-confide ce grew with the group's support, the students felt imaginative, creative and productive. According to Illeris (2007), more active and engaging forms of interaction can contribute to transformative learning, often triggered by a process involving participation and implementation of activities (img. 4). The interaction dimension described in this section has mainly focused on the importance of the context for learning.

Discussion

In this section, we will discuss the results in relation to K. Illeris's two processes: external interaction process and internal psychological process, and the three dimensions, according to the figu e below. We have developed Illeris's figu e by adapting it to our study: *aesthetic* content, *students*' incentive and *Storyline* educational context.

The results show that the students have transformed their frame of reference and changed their perceptions. To achieve this, critical refl ction was a prerequisite. The students emphasised the importance of creative processes and creativity, and divergent knowledge, rather than merely acquiring already developed knowledge. Th s transformative learning was, according to the students, somewhat nerve-racking and challenging, which implies that the students had to put effort into the Storyline work; it was not all enjoyable and pleasant. However, once they had overcome this threshold, they felt stronger, more self-confide t, and they said that aesthetics are now an accessible tool that they can use and would use as teachers. The Storyline has inspired them and shown

that Storyline is a way to make aesthetic aspects of learning less dramatic than they used to think, but rather a fruitful means of including all pupils in different ways. Th s clarifies the entanglement of the two processes. The interaction between the students within the Storyline context has played a crucial role for this acquisition.

We would claim that the aesthetic content in Storyline is an essential feature for three reasons. First, learning *about* aesthetics, second, as a *way* of learning, and third, learning about oneself to understand one's own reactions. In the content dimension, the students' comprehension concerning knowledge and skills regarding aesthetics has deepened. They link the aesthetics to the possibility of refl cting through all senses; thus, they realise that there is no contradiction between on the one hand being creative and having fun, and on the other hand developing knowledge.

Here, we would argue for the signifi ance of the incentive dimension for the learning process. Students' descriptions of being immersed in a feeling of full involvement and enjoyment in the Storyline process was not one that we had anticipated. We found it very interesting that the students expressed this feeling in such a lively way as they did. We interpret the students' feelings of being absorbed, creative and committed as a state of fl w (Csikszentmihalyi, 1996). Th ough Storyline work, students have the opportunity to involve all the senses, which may lead to affective learning. The power of affective learning is its importance for identity building, creating an integrated learning situation, i.e. when knowledge is embodied. Therefore, we claim that the incentive dimension should be foregrounded more often. Today, the content dimension often governs the didactic choices, while there are benefits to starting with aesthetic and affective experiences.

The Storyline in this study affords a distinct environment for the students' emerging identity as teachers. For this to happen, an external interactive process and an individual internal psychological process of elaboration and acquisition are required. The interaction dimension is highlighted by the students. For example, the cooperation in the groups is stressed as being critical, both during the creative parts and during the multimodal presentations. The students were inspired by each other, their limits were expanded, and they felt comfortable during the whole Storyline week. In particular, we want to pay attention to the importance of refl ction, for all participating students in general, and especially for the students who were interviewed. The interviewed students said that, through the interview discussions, they deepened their understanding of the meaning of using aesthetics in education. They mentioned explicitly their understanding of the three key concepts in the course – imagination, creativity and creation – as an effect of their dialogue in the focus group. In the students' multimodal examinations, we observed that the students from the focus groups performed on a higher level and showed a more in-depth understanding.

In this study, the processes and the dimensions (Figure 2) have shed light on the students' identity formation. Some have expressed this as a movement from feeling anxious about aesthetic expressions to feeling self-confide ce, and that they can now use and dare to use them in their future work as teachers. Th s has been enabled through both thinking and doing. Altogether, this is precisely what transformative learning is!

Conclusion

If student teachers are to understand The Storyline Approach, its broad capability to support learning development, and its various ways of reaching different educational goals, teacher education needs to provide opportunities for student teachers to experience, refl ct on and critically question this approach. When discussing different perspectives on aesthetics in Storyline, student teachers were given the time to refl ct on their experiences, and to learn from each other. Th s occurred through the study rather than being part of the educational framework, that is, through the group interviews and also very likely by letting the student teachers keep logbooks. Therefore, we would stress that Storyline in teacher education should include different procedures that give student teachers enough time to discuss in depth the features of Storyline with regard to their different learning outcomes. The intersubjective affects, in both The Storyline Approach, and in focus group interviews, could be more deliberated designed in teacher education as a way of acknowledging the importance of students' incentive dimension in learning processes.

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Chapter 3

Using Storyline in Teacher Education: "I am now the teacher I always believed I wanted to be."

Wendy Emo, Kenneth R. Emo, Kathryn Penrod, Lynda Venhuizen and Renae Ekstrand

Abstract The goal of this paper is to share the perspectives of four university teacher educators who adapted their teaching to include The Storyline Approach. Th s biographical action research explores why the educators included Storyline, their struggles, and what they learned. Teachers' lives studies informed this work. The educators anticipated difficulties with using Storyline that generally did not materialise; the benefits they anticipated did occur. The instructors discovered benefits they did not anticipate, such as the high student enjoyment and the instructors' own desire to share the experiences of their Storyline teaching. Using Storyline enhanced the instructional affective environment; students were engaged more fully with the curriculum than in prior semesters. Storyline added personal meaningfulness to the instructors' work, which in turn contributed to positive professional identity, a key to effective teaching.

Keywords: innovative teaching, university teaching, biographical action research

Introduction

Th oughout the length of their careers, most teachers adapt, grow and make changes to their practice that, in their eyes, make them more effective. Our goal in this paper is to explore the perspectives of four Midwestern United States university teacher educators who, as part of an action research project, adapted their teaching to include The Storyline Approach. Each participant was a mid-career teacher who had chosen to train university students in the art and practice of teaching. Th s paper is one culminating product of what we learned and how we changed through this action research project.

Our action research group met periodically through the semester. Led by Wendy (lead author and researcher), our meetings included information on Storyline and conversation about the ways we were incorporating Storyline into our courses. We each brought unique personal goals to our group, but generally we were all interested in making our instruction more learner-centred and more interesting for our students. Each of us contributed our own perspective on our teaching to this paper with the guidance and organisation of Wendy. Th s is further explained in the methods section.

Our anticipated benefits from innovation materialised to a greater degree than anticipated, while our anticipated difficulties generally did not materialise. When innovating, we experienced issues in personal development, such as struggles with implementation, practice with innovations, and doubts regarding the innovations, similar to

experiences of innovative K-12 teachers. Our use of Storyline teaching methods led to unanticipated results such as increased enjoyment of our own teaching, establishing a collaborative culture, and changing the teaching emphasis from how to why.

In this chapter, we share our experiences of developing what was for us a new way of teaching university content: using Storyline as the container for course content. As we changed our approach to teaching and reflected on the experiences, we realised that we could also answer the following questions:

- What explains teacher-initiated curriculum innovation?
- What benefits did the teacher educators anticipate would accrue from initiating innovation with Storyline, and were these benefits realised and sustained?

We wanted to change three things in our pre-service classes: to increase student understanding, to increase student ownership, and to increase authentic or applied learning opportunities in classes which had no field component. We also found that Storyline provided tasks for the students in which they were able to explore, reflect, collaborate, and experience – thus working through their own active learning, rather than attempting a passive memorisation of course material.

Teachers' innovations often develop with struggles. Learning what works in the classroom requires practice and the freedom to experiment in the classroom, including the freedom to fail in those experiments (Loughran, 2002; Postholm, 2008). Failures can dominate teachers' memories of attempted innovations and prevent further exploration: one faculty member said of her teaching innovations at the university level, "It's crash and burn that sticks in my memory" (melba_frilkins, 2010, January 8, par. 1). Teacher leaders should understand teacher change, particularly that which is teacher-initiated rather than administrator-initiated. Teacher leaders who examine their own metamorphosis in teaching are using one avenue for understanding change and innovation.

Teachers' self-initiated efforts at innovation, for whatever reason they are pursued, are key contributors to positive professional identity. A positive professional identity is in turn a key contributor to effective teaching (Day, et al., 2007). Teachers who innovate may simply be searching for more effective teaching, perhaps inspired by student comments (Connelly & Clandinin, 1988; Ritchie & Rigano, 2002). Teacher-innovators may attempt to bring personal meaning to their teaching, as noted in both the 1950s and 1970s (Jersild, 1955; Lortie, 1975). Keeping themselves interested is another possibility, since teachers' job enjoyment may be dependent in part on adding elements of diversification and complexity (Day et al., 2007; Huberman, 1993). A self-initiated innovation means that the innovator is in control of both the nature of the innovation and the level of challenge it presents to the innovator; appropriate challenge and control is related to teacher self-efficacy and an important predictor of job satisfaction (Skaalvik & Skaalvik, 2010). Teachers who innovate in their classrooms find themselves active, energetic, and mentally stimulated. Teachers who assigned a very large role to classroom innovation are highly motivated, energetic, and dynamic throughout their careers (Huberman, 1993). Teaching has been referred to as an art (Day, 2004; Eisner, 1979) and similar to

jazz improvisation due to the variation or creativity within a structure (Nieto, 2005). But just as artists and musicians need to practice and explore variation within structure, so do teachers.

Teacher educators model and practice many strategies in their teaching. Teacher education students analyse teaching through viewing media, reading case studies, and writing autobiographies of their own past learning situations. The students also role play, write reflections, and present research in short lectures and poster sessions. Although we used all of these strategies, these alternatives did not feel adequate for our needs. Our courses were not directly tied to field experiences in schools, and in Ken's case, the course was three hours long once a week. We wanted to improve both the cognitive and affective aspects of our classes. We thought using Storyline might help.

Conceptual Framework

The lives of teachers (Huberman, 1993), a study of 160 Swiss secondary teachers, has been widely cited as a seminal work in teachers' lives. After exploring the career and gaining confidence, mid-career teachers generally went through a diversification stage in which they experimented or innovated in their classrooms (or sought a different position within the school). Likewise, *The new lives of teachers* (Day & Gu, 2010), a study involving 300 UK teachers, shows that many mid-career teachers search for stimulation and challenge, thus developing and deepening "their capacity to teach their best" (p. 87).

Teachers in the diversification stage challenge themselves; in this career stage they are highly motivated and dynamic. Catalysts for innovating may be self-reflection or conversations with students or other teachers. The teacher may simply teach more effectively, or the teacher may desire for complexity, challenge, and autonomy (Emo, 2010).

Teacher educators are aware of the relationship of cognitive and affective dimensions of teaching. Teacher educators may agree that increased student engagement and ownership of learning may require that "knowledge should not be purely 'acquired' but 'lived' or 'felt'" (Hofmann, 2007, p. 73). McNaughton (2007) expanded on this in relating Storyline work to drama. She proposed that because drama participants "live through" (p. 151) dramas rather than merely watching them, their reflections and evaluations result in deeper understanding of situations. The students know the dramas are not real, but because they suspend their disbelief, they can inhabit, be aware of, and interpret both the real and the imagined world. This concept of helping students to "live" knowledge echoes situated learning theory, which argues that effective learning takes place when learners are engaged in practice (Lave & Wenger, 1996).

Continuing this thought but changing the focus to teachers, it is possible that teachers may increase their own engagement and ownership when they are involved both cognitively and affectively. It could be that teachers like to enhance the affective dimension of their work through using a teaching method such as Storyline, which depends on imagination, creativity, and responsive teaching.

Method

Since we were investigating what effect Storyline use had on our courses, we approached this study through biographical action research (Zinn, 2004) with our multiple cases. Biographical action research "starts with observing meaningful actions" (Zinn, 2004, p. 9) and uses interviews to provide insight into why the actions occurred and how the actions changed with time. Interviews are structured and use open questioning, just as is commonly used in qualitative research interviews. The interviewees in biographical action research explain their own actions. The lead author of this paper, Wendy, taught the others about Storyline in a week-long workshop, and then interviewed the other authors as they planned their Storylines and initiated this complex change to curriculum.

Over the course of this study there were 18 individual interviews with the four co-authors over the course of 16 months; each averaged 22 minutes. Interviews were audio-recorded and complemented by longhand notes taken during the interviews. Interviews took place both in the implementation semester and during successive semesters when the instructors repeated their courses and refi ed their original plans. A professional learning community spontaneously developed during the study, and these 3 meetings were also recorded (averaged 76 minutes each). In addition to individual interviews and group discussion, data were collected from observations, post-implementation refl ctions, and digital photographs of student work.

The lead author (Wendy) transcribed all notes and interviews, notes taken from the observations and photographs of student work; these formed the data. Preliminary coding revealed general comment categories which were either objective (related to curriculum) or affective (related to social or inter/intrapersonal issues). These categories provided the basis for line-by-line coding with the help of a computer assisted data analysis tool. Sub-categories in both objective and affective areas then emerged as the coding progressed; the transcripts showed that the co-authors anticipated both benefits and difficulties for their innovations with Storyline. The comments could then be grouped into additional sub-categories. Table 1 gives examples of the coding process with interview statements made before the Storylines were enacted in the co-authors' classes. Tables 2 through 6 show the codes and whether or not the participant made remarks in those areas.

The four co-authors received the transcripts of the interviews and wrote narrative refl ctions. These were added to this paper to provide a fuller picture for the reader.

Gaining knowledge of teachers' thought processes, motivations, and feelings can happen through open-ended verbal exchanges, such as those in one-on-one interviews and group meetings, as were conducted in this study. It is possible that teachers' viewpoints could be obtained through asking participants to keep journals, but this was deemed onerous for the participants. The repeated interviews were spread over 16 months and did not reveal comments which were inconsistent within individuals over this time period.

The four participants, the co-authors, self-selected for this study. All were mid-career at the same university, and all had the ability to speak with other participants during implementation. Their career classifi ations were two instructors, an assistant

Tab. 1: Examples of coding the interviews

Interview statement	Broadest category	Refined category	Code
What they're going to have to do with Storyline, is they're going to have to make decisions. And they're going to have to be, themselves be, involved in a creative activity where they themselves decide how the concepts should be applied.	Objective course needs	Objective course needs: benefits	Provides application of concepts
I would like to carry over into my classroom teaching the philosophy of inquiry-based, constructivist education, and Storyline seems like a great fit.	Objective course needs	Objective course needs: benefits	Provides alignment with philosophy
I was sort of apprehensive about teaching one three-hour block once a week, and I think this Storyline will work out well.	Objective course needs	Objective course needs: benefits	Provides alternative to lecture
Th ough using Storyline I'm trying new approaches to helping students understand new concepts in teaching. It's going to require a lot more synthesis, a lot more evaluation, a lot more application.	Objective course needs	Objective course needs: benefits	Raises the course rigor
I think it's imperative for me to understand other ways to do curriculum. It's imperative for me to try it so that I understand it.	Affective course needs	Affective course needs: benefits	Instructor is personally learning
I am concerned about college students constructing their own knowledge.	Objective course needs	Objective course needs: difficulties	Curriculum coverage
What if my students' attitudes are: "Th s is weird. She's weird." Our students generally are pretty traditional and difficult to get out of their expectations.	Affective course needs	Affective course needs: difficulties	Students might not engage
There are going to be some students who are, you know, natural group saboteurs, who create some felonious-looking image with tattoos and scars and beards. With eighty-some students total who are going to be involved in this project in my sections, there are bound to be a few who resist the assignment initially and try to figu e out some way to subversively undermine the validity of the project.	Affective course needs	Affective course needs: difficulties	Students might not engage

Tab. 1: Samples from the interviews showing how the statements were coded

professor, and a professor. At the time of the study, all participants taught at one Midwestern United States university. It is possible that different results could occur with different instructor or student populations.

All participants were given a statement of ethics at the outset of the study. All were given the opportunity to withdraw from the study at any time. In no way was their participation connected to any employment evaluations or any other consequence. The group discussions that developed from participant suggestions were not required-participation events.

Data: In Our Own Words – Stories of Innovating with Storyline in Teacher Education

Storyline teaching in part depends on the instructor allowing plot to develop from the students' characters, questions, and ideas; this defi es the instructor/student co-constructed nature of the narrative and requires the instructor to be flex ble. The Storyline instructor does not know the details of every class meeting before the semester begins, as he or she might in a class dominated by lecture. Storyline requires the instructor to make a personal leap of faith that he or she will be able to control and contain the content of the class. We share below our stories of innovating with Storyline in our teacher education university classes. We include the specific changes we made to our usual teaching methods, our motivations and struggles, and our plans for future developments.

Ken: Using Storyline in educational psychology classes

Why and how I implemented Storyline.

The challenge I faced in teaching Educational Psychology was that the class met once a week for three hours. I wanted to engage students in a meaningful student-centred task that allowed them to apply and make sense of the academic concepts. I developed a Create-a-Teen Storyline in which pairs of students created a fi titious teenager – one they believed they could have in class as their future student – and applied to this teen the concepts learned and discussed in the course. I paired students on this project so the students would talk about the concepts taught in class.

For the last hour of class each week the students worked on Create-a-Teen. With composite imaging software they gave their teen a face, and developed a biography for the teen, including the family with whom the teen lived and the personality traits of the teen. All assignments based on this teen were posted to a shared website.

Misgivings, anticipation, and student evaluations in the first semester.

I anticipated that there might be natural "saboteurs" whose desire to have fun might challenge the design and intent of the assignment. Th s did happen; students did create slightly problematic characters, such as Jewish "Jesus" (not "Hay-soos"), whose mother

was single and whose father was a carpenter, and Irish "Finney McFinnegan," whose parents drank whiskey and fought. Concerned that these characterisations were culturally disrespectful, I intervened to encourage the students to tone down their stereotypical depictions. But I also anticipated that through working through the educational psychology of the fi tional teens, the pre-service teachers might develop more compassion for the unusual student in their classrooms.

By the fourth week of class my students showed a general attitude of positive anticipation. By mid-semester I presented students with conceptually-oriented, realistic scenarios for the fi titious teens which applied the concepts encountered in the educational psychology course. Each assignment was completed by the student pairs and posted, which allowed me to assess student understanding of the concept and gave students access to their classmates' work.

At the end of the fi st semester I had the students evaluate the semester-long project. In general, the students gave a positive rating to the project. Many enjoyed the creative licence given them in developing their teen, and they enjoyed the ability to work with a peer in completing the assignments. They faulted the project as becoming too routine by the end of the semester: they wanted more direct interaction with other student-pairs and more involvement in designing the weekly scenarios. Upon refl ction I realised that I needed use more class time to involve students in discussing the scenarios before breaking into teams to have their teen respond to the scenario.

Changes to the Storyline: student evaluations and instructor reflection.

In the next semester I dedicated more class time to whole-class discussions and I had students contribute ideas for future scenarios. The following year I added a social networking component to the class, in which each teen interacted with each other and with my fi titious school counsellor. Th s increased the interaction between the fi titious teens, which meant student pairs worked more closely with other student pairs in completing assignments.

When I began the Storyline, I had a few misgivings about whether or not the students would think that the fi tion would be juvenile. But I was surprised to hear positive remarks from both male and female former students about the Storyline learning. Students have said, "I really enjoyed that project that we did in Ed Psych, where we did the teens and we did the weekly postings," and "I *loved* that project. That was so much fun."

The Create-a-Teen Storyline was a positive learning experience for students in Educational Psychology. Storyline allowed me to process concepts with the students in a way that I wouldn't have as effectively otherwise. It gave me the ability to assess my students in unique, more authentic ways. Positives include students interacting about the concepts discussed in class and applying these concepts to scenarios – scenarios that they may well have to deal with as future teachers.

Kathryn: Using Storyline in educational psychology classes

Why and how I implemented Storyline.

I used Storyline in Educational Psychology. Like Ken, I wanted to enhance student understanding, ownership, and application of the curriculum. I altered Ken's plan to fit my one-hour, three days a week class. I had my students choose photographs of teenagers torn from magazines and then create personalities for the teens in the photographs. Students posted and responded to applications of concepts as they related to their teens, just as students in the other Ed Psych sections did. The venue contributed to student motivation and professionalism, and it allowed students to compare concept applications with each other.

Misgivings, anticipation, and student evaluations.

Because of my previous teaching experiences in using scenarios, I had a sense that the Storyline plan would work, and it defin tely did, even better than I expected. I asked my students mid-semester to anonymously evaluate the project, and I was surprised by their overwhelming positive evaluations. They wrote comments like, "I never slept in class yet, and it's the only class I've never slept in," "Working in class with the teens is a good way to spend Friday afternoon," and "It makes us work with concepts in ways that I never thought I would work with concepts in a class." Later, students' course evaluations revealed that they very much appreciated the opportunity to collaborate with their classmates as they worked with the teens.

I was concerned that the created teens were uni-dimensional and idealised; they were solid young people with goals and kind, happy personalities. I inserted random events into our plot, which introduced complexity into the lives of the fi titious teens. I also separated team members so that students could work with others, such as two fi titious teens working on school projects together.

Each semester my students have recommended that I continue with the Create-A-Teen Storyline. Both my students and I have had fun participating in the work, and I feel that I know my students better than I do in other classes. The resulting relationships – partnered students, re-combined partners, and students with me – contribute to a classroom culture that is unique, safe, and ideal for learning.

Lynda: Using Storyline in "Integrated Curriculum in the Primary Grades."

Why and how I implemented Storyline.

My task with my course is to help students make the transition from teaching pre-schoolers to teaching in the elementary grades. The preschool teaching philosophy is based on Reggio-Emilia, which requires the teacher to set up a learning environment, observe the children, and plan activities that will further the children's understanding. Storyline's philosophy of co-constructing learning with the learners co-constructed

philosophy was the perfect bridge for students as they transitioned from Reggio Emilia to content standards and basals.

At the beginning of the semester each student created a paper doll second grader with a personality, family background, interests, desires, and needs. They also each created settings: a second grade classroom made in a shoebox.

The college students alternated their roles between second grade student and teacher, depending on the topic. The "teachers" presented mock lessons to the "students" and experienced real-world issues such as English Language Learners and children with ADHD (attention defic t/hyperactive disorder). Each week the students would refl ct in a journal on some element of teaching related to what we had covered in class or an incident that was presented. Toward the end of the semester, I revealed Storyline to them as a model and told them that they had been engaged in Storyline throughout the semester. Th s helped them to understand the principles of Storyline and how to apply it. One student immediately integrated this learning to her work with kindergartners in an out-of-school-time programme. The student shared weekly updates with her peers in my class.

Student evaluations and changes.

In response to a student's suggestion, the next semester I introduced Storyline formally at the beginning of the semester. Students still created children and classrooms, and I still used incidents to which they had to respond. Students developed Storyline plans and elaborated on elements of that plan for individual and detailed lessons.

The students participated in a Storyline unfolding in a kindergarten class right across the hall from the college classroom. The kindergarten class discovered an enchanted forest, a small wooded space just outside the building, and then created imaginary animals that lived there. The kindergarten teacher visited class to discuss her Storyline, and this validated to the students that Storyline is achievable and valued by people other than myself. The college students ended the semester with positive feelings about Storyline and the delicate balance of fantasy and reality that interact in Storyline to keep children engaged, interested, and wanting more.

Realisations.

In the beginning of this Storyline quest, I feared that I would sacrifice course content by neglecting my beautifully prepared PowerPoint presentations. Upon refl ction, I realised that prepared lectures run the dangers of rigid content and passive learning. My teaching evolved to become learner-centred through my fi st year with Storyline. I abandoned most of my PowerPoint lectures. My image of the student changed from one who is there to learn from the teacher to one who is competent, one who has learned from a lifetime of being a student. Because my teaching communicated this trust to my students, my students felt safe to engage in rich dialogue about their choices and own experiences. They became the experts and learned from each other. My job was to

provoke them, to provide some incidents for them to carefully consider, research, and then develop their own responses.

Storyline has brought new life into my teaching. I feel that I am now the teacher I always believed I wanted to be.

Renae: Using Storyline for learning about special education

Why and how I implemented Storyline.

My class "Early Intervention and Family Centered Practices" was designed to help prepare early childhood professionals serve children with exceptionalities and their families. There was no practicum or fi ld experience component, so Storyline would provide students with an alternate form of experiential learning. The Storyline took place over just a few weeks.

The students each created a paper doll child. Students then wrote a short biography of the child, including age, personality traits, family members and other information the students thought relevant. While students were working on this activity in class, there was a lot of positive interaction among the students. Students commented about each other's artwork and creativity; they were interested in each other's children, and they exchanged ideas. I was pleased students were opening up to each other and a sense of community was developing within the classroom through the common activity. Each child's creator was visibly connected to his or her own child and seemed to display parental pride and protectiveness.

The fi st incident involved learning about disabilities. I randomly handed out to each student a note card which had a disability written on it. I explained that their child had just been diagnosed with that disability.

Student reactions to the Storyline.

Student reactions to being told their child had been diagnosed with a disability were revealing. Some students were upset and immediately came up to me after class wanting to know about the disability or to tell me about a person they knew who went through the real experience of discovering there was something "wrong" with their child. I thought my own response to one student's feelings particularly interesting: when the "parent" of the foetal alcohol syndrome child reacted, I quickly gave her an out, saying, "You know, she could be adopted." The student accepted that explanation of the fi tional situation. The next semester I did this activity, I added a refl ction assignment asking students to write about their feelings and immediate reaction to being told their child had a disability and to think about how going through this experience would help them as a professional working with families.

Students researched the disability which was written on their card and then wrote a letter from a parent's perspective explaining that disability to their child's teacher. The letter included information about the disability as well as the parent's hopes and fears for their child. Students presented their letters to the class. I was amazed at the amount

of information that they gave. They expressed and demonstrated understanding, instead of just parroting defin tions of special needs classifi ations.

In the role of teacher, the students responded to the parent's letter. The teachers provided information on inclusive and developmentally appropriate programming. We also used the information to write individual educational plans for the children.

Realisations.

In the past, I assigned students to research and present information on various disabilities, but an emotional element was missing. With students creating their own child and putting thought and effort into developing the child's profile and sharing their child with their classmates, they felt connected to this child. Learning their child had a disability elicited strong emotions and students were motivated to learn about this disability because it was about their child, not just because it was an assignment. Putting themselves in the position of the child's parent, they not only shared factual information about the disability, but they also had to think about how it would affect a parent to learn their child had this disability and what fears, dreams and hopes they could have for their child. When the students had to put themselves into the position of a teacher who might be working with a child with a disability, they had to learn about the responsibilities involved as a professional in the fi ld of early childhood special education. These experiences provided a powerful outlet for students to explore both sides of the early childhood team – both the family member's and professional's perspective. None of my students asked, "Why should we do this? Am I getting a grade for this?"

Rather than using just the textbook and handouts, lecture, research and presentations to cover the content of the course, using The Storyline Approach allowed me to integrate content, skills and concepts through a learner-centred, activity or discovery approach method and also model and practise successful differentiated group work. I as the instructor had a plan for what curriculum and content needed to be covered but it was truly brought to life through the imagination, creativity and work of the students.

Results

In this section we share what we discovered through using Storyline in teacher education.

As we thought about and planned for using Storyline, we anticipated both benefits and difficulties. These benefits and difficulties each further fitted into two categories: objective and affective factors. Objective factors are those such as covering curriculum and providing concept application. Affective factors are both interpersonal and intrapersonal issues which affect teaching, such as the teacher's own feelings about the class, student contributions, classroom dynamics, and the teacher's need to socialise. We felt strongly enough about the anticipated benefits that although we anticipated difficulties, we went ahead with the Storylines.

Tables 2 through 5 each show one of the refi ed categories coded from the interviews. Each code is shown, along with whether or not the participant made remarks in that coded area (signifi d by the "x" in the box). These tables also show whether or not the

Tab. 2: Objective course needs – benefits of using TSA

Code		Renae	Lynda	Ken	Kathryn
Provides application of concepts	Anticipated		x	x	x
	Found		x	x	x
Raises the course rigor	Anticipated		x	x	
	Found		x	x	
Provides alignment with philosophy	Anticipated	x	x		
	Found	x	x		
Provides alternative to lecture	Anticipated	x	x	x	
	Found	x	x	x	

Tab. 2: Benefits the instructors anticipated and later found regarding using TSA in objective areas of course design and implementation.

Tab. 3: Affective course needs – benefits of using TSA

Code		Renae	Lynda	Ken	Kathryn
Instructor is personally learning	Anticipated	x	x		
	Found	x	x	x	x
Instructor's socialisation with other instructors	Anticipated	x			
	Found	x	x	x	x
Provides challenge and opportunity for refi ement	Anticipated	x	x	x	
	Found	x	x	x	x

Tab. 3: Benefits the instructors anticipated and later found regarding using TSA in affective areas of course design and implementation.

Tab. 4: Objective course needs – difficulties of using TSA

Code		Renae	Lynda	Ken	Kathryn
Curriculum coverage concerns	Anticipated	x			
	Found	x			
Students will think TSA is inappropriate for their age	Anticipated	x		x	
	Found				
Assessment will be difficult	Anticipated			x	x
	Found			x	x
Technology creates difficulties	Anticipated			x	
	Found			x	
Will take more time in class than lecture	Anticipated	x	x	x	x
	Found		x	x	x

Tab. 4: Difficulties the instructors anticipated and later found regarding using TSA in objective areas of course design and implementation.

participant's remark was made before the Storyline was enacted ("anticipated") or after ("found") the participant used Storyline in his or her teaching. Tables 2 and 3 show the benefits anticipated and found; Tables 4 and 5 show the difficulties anticipated and found.

Tab. 5: Affective course areas—difficulties of using TSA

Code		Renae	Lynda	Ken	Kathryn
Instructor feels nervous	Anticipated	x			
	Found				
Students might give negative feedback	Anticipated	x			
	Found				
Students might not engage	Anticipated	x		x	
	Found				
Honouring student contributions might be difficult	Anticipated			x	
	Found	x	x	x	x

Tab. 5: Difficulties the instructors anticipated and later found regarding using TSA in affective areas of course design and implementation.

The participants also experienced benefits of using Storyline which they did not anticipate before starting to teach with Storyline (see Table 6). All of these were in the affective course areas, or topics which are inter- and intrapersonal. None of the participants made remarks about objective course areas (related to curriculum) which they did not anticipate before enacting the Storyline.

Tab. 6: Affective areas – unanticipated benefits

Code	Renae	Lynda	Ken	Kathryn
Better student interactions		x		x
Better classroom management	x	x		x
Higher confide ce in student understanding of concepts				x
Instructor's desire to share with others	x	x	x	x
Continued teaching change		x	x	x
Positive feedback from students	x	x	x	x

Tab. 6: Benefits of using TSA which the instructors did not anticipate but did encounter in affective areas of course design and implementation.

Discussion

In this section we revisit the stories told above. Th s section also includes fi dings from the interviews. We were interested to discover that we had commonalities, particularly in our anticipations and our triumphs.

Increased student understanding and ownership of the curriculum

We all thought that The Storyline Approach would accomplish the goals of increasing student understanding and ownership; we also valued it for the applied experience in courses which did not have fi ld components. We initially thought also that The Storyline Approach might help raise the course rigour. Ken anticipated that the developed characters might help the university students—predominately conventional learners—develop perspectives for working with their future students who learned in unconventional ways.

We found that the co-constructed, narrative teaching did engage our students and increase understanding, though the evidence of increased understanding was not compared empirically. Storyline provided an alternative to lecture and thus better aligned the course delivery with our philosophy of teaching.

Shared concerns, differences, and struggles with implementation

Just as we shared an anticipation of engaging students, we shared two main concerns: (1) that students would think that creating the fi tion was juvenile and beneath the level of university work, and (2) that creating the fi tion might take too much time from learning course content.

These concerns did not materialise. Students did not think the fi tional work juvenile in any of the classes; to the contrary, other faculty overheard students from different sections of Educational Psychology sharing their fi tional work with each other outside of class time. We found that content fit into the narrative fairly well, though Renae used the fi tional Storyline for only a few weeks while the others used it for organising most of the semester's work.

We did not use Storyline in exactly the same applications. Ken and Renae did not use created settings, but Kathryn incorporated a setting even in the fi st iteration of her Storyline. Lynda tried both using settings and not using settings; she eventually decided that created settings contributed to student participation, ownership, and understanding. Ken incorporated Facebook as a way to engage students in more conversation with each other. All of us required students to respond to others' contributions. We realised that learning for both the faculty members and the students occurred through collaborative participation, which is recommended as effective for both students and teachers (Hodkinson & Hodkinson, 2005).

We did struggle a bit with using Storyline. These struggles included abandoning lectures prepared for previous semesters, learning new technology applications, negotiating classroom display space, and supporting students in learning in a different way. Waiting for students to discover the implications of concepts for their teaching practice was a challenge when the temptation was to lecture the point into students.

All of us encountered instances where it was a bit difficult to honour student contributions, such as when students created stereotyped or idealised characters. These struggles refl ct Hofmann's (2007) comment that it is not always easy for teachers to allow their students ownership while also making sure learning goals are met and cur-

riculum coverage is achieved. However, increasing student ownership was one of the goals of this innovation.

Results we did not anticipate.

We did not anticipate positive personal results, such as the increased enjoyment of our own teaching, which did become evident. It is possible that the enjoyment factor was due to the element of students' emotions being engaged in their learning and due to the element of play (creating the characters and enacting the drama of the Storylines) which became included in the university work. Kaasila and Lauriala (2010) remind teacher educators that teachers' emotional experiences with reform influence their risk-taking. We experienced positive emotional experiences and continued to tinker with our innovations, or risk taking, in following semesters.

We did not anticipate our students engaging in and enjoying the work as much as they did, nor did we foresee that we would develop a collaborative culture between ourselves as instructors, which helped develop shared expertise. Because the personal connection and the plot of Storyline provided a level of engagement and thought we had not previously seen, we saw that both teaching and student learning seemed to change from an emphasis on what and how to an emphasis on why – defin tely a result we did not anticipate.

Conclusions

We created for ourselves a high level of task complexity through using Storyline to adapt the curriculum, and we found the fi st semester of this time-consuming, as is common in major innovations. At the same time, however, like the diversifi ation-stage teachers in Huberman's study (1993), we found that we were energised in our risk-taking. We looked forward to being with our students and participating in our creative learning ventures; in a curious cycle, we became more motivated to teach because our students were engaged. The personal connection and the plot of Storyline provided a level of engagement and thought that we had not previously seen in our students. The unexpected benefit was, as Kathryn remarked, "We're having so much fun with it that it's not work." Using Storyline defin tely enhanced the affective environment of our classes, and we found to our surprise that the students engaged more fully with the curriculum than in prior semesters.

It can be tempting for university instructors to adhere to a proven syllabus and familiar methods. However, preservice teachers will benefit from their instructors modelling innovative teaching (Loughran & Russell, 2002). Collegial and administrative elements of support were not essential to the innovations, but the support certainly created a risk-tolerant innovation atmosphere. The same elements of support are conducive to innovative teaching in K-12 dassrooms (Fullan, 2007; Day & Gu, 2010).

Our experiences show that university instructors experience issues in development similar to those of K-12 teachers. We struggled with elements, such as abandoning "beautifully prepared PowerPoint presentations" so that students themselves could

become experts. We practised with the innovations, as shown by our planning, implementing, getting feedback, and then changing plans for successive classes. We pursued the complexity of teaching with Storyline, not for the reason of desiring complexity as a way to keep ourselves interested in our jobs, but for the reason of addressing the course needs. Just as teacher studies have shown for decades (Jersild, 1955; Lortie, 1975), we found that our innovations added to the personal meaningfulness of our work; knowing that the students thought the courses were memorable was particularly meaningful. Our efforts at innovation were contributors to positive professional identity, which is in turn, key to effective teaching (Day et al., 2007). We didn't really think of this until we analysed our comments about what our students said and Lynda's remark, "I am now the teacher I always believed I wanted to be."

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Chapter 4

An Exploration of the "Mimetic Aspects" of Storyline Used as a Creative and Imaginative Approach to Teaching and Learning in Teacher Education

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Abstract. The aim of this study is to contribute to a comprehensive understanding of the potential mimetic aspects of The Storyline Approach (TSA)[1]. Th s study critically examines how student teachers create imaginative make-believe experiences within the use of *examples* (props) in teaching and learning about sustainability. The analysis follows the parameters set out in Willbergh's (2011b;2015, 2016, 2017) theory of mimetic didactics. Data were collected during a Storyline by sound recordings, and immediately after the Storyline using focus group interviews. The result of the study indicates that Storyline expands the students' own experiences through imaginative make-believe interpretations created from 1) The making of the props: the frieze and the handheld puppets, 2) Taking on fi tional roles and role-playing, 3) Applying, sharing and using each other's knowledge, and 4) Perceiving activities as if they were pupils. Th s is interpreted as important for the students' professional teachers' qualifi ation in bridging school content with competance for the future.

Keywords: Sustainability; "as-if" experiences; professional development; exemplary teaching.

Introduction

Developing student teachers' professional identity is an essential concern within teacher education (Tsybulsky & Muchnik-Rozanov, 2019, p. 48). In recent years, a growing body of research has focused specifi ally on student teachers' professional identity development (see cf. Anspal, Leijen, & Löfström, 2019; Lamote & Engels, 2010; Ruohotie-Lyhty & Moate, 2016). Teacher identity can be understood as an "ongoing process of negotiating and interrelating multiple I-positions in such a way that a more or less coherent and consistent sense of self is maintained throughout various participations and self-investments in one's life" (Akkerman & Meijer, 2011,p. 315). Teachers' professional identity is therefore, according to Day, Sammons, Stobart, Kington and Quing (2007, p. 103) the "key factor influencing a teacher's sense of purpose, self-efficacy, motivation, commitment, and effectiveness" (Day et al. in Anspal et al., 2019, p. 1). In this study our particular interest is in *mimetic didactics*, a new perspective on teachers' professional

1 The abbreviation TSA is developed by Lockhart-Pedersen and Bjørnstad (2019a)

development (Willbergh, 2010, 2011a). Mimetic didactics defines, according to Willbergh (2015), an imaginative function in education; where the teacher based on her/his prior knowledge of the students and the use of examples, manages to transform the curriculum "into significant content conceived as meaningful by the students themselves" (p. 342). This means that the teacher knows how to design classroom instruction in ways that activate students' imagination in manners that bridge "school and real life and school and future" (cf. Willbergh, 2015, p. 341). Examples in this study is defined as, "something specific that represents something general […] a specific aesthetic object, a case, a verbal expression, a picture or the like" (Willbergh, 2016, p. 114).

With this, the study sheds light on how student teachers' *mimetic didactics* can be developed through the use of Storyline as a "creative and imaginative approach" (Omand, 2014, p. 8) to teaching and learning in teacher education. In Storyline, the most evident products of imagination are according to Ahlquist (2011) the character representations and the frieze; *examples* created by the learners (p. 38). The aim of the particular Storyline-project was to expand the student teachers' insight into how exemplary teaching can be designed for making the school's content significant and meaningful for life. Further, the goal of the Storyline-project was for the student teachers to experience how exemplary teaching facilitates active imagination and "make-believe" experiences (cf. Willbergh, 2011b). Experiencing, practising and participating in a Storyline is according to Falkenberg (2016) the most effective way of learning to teach this method (p. 221).

The purpose of the research study is thus to explore if, and if so how, examples created within the particular Storyline focusing on sustainability, activate subjective facets in the student teachers' learning. To guide the data collection and analysis, the following research question has been put forward: *How are imaginative make-believe experiences created through a Storyline implemented as exemplary teaching in teacher education for second year students, where sustainability is the content of the learning?* From the perspective of mimetic didactics, 'make-believe' defines creative interpretations of examples where fictional truths and "as-if" experiences, are generated (Willbergh, 2011b). The study aims to contribute a novel understanding of the potential of using Storyline as exemplary teaching in student teachers' professional development. By focusing on exemplary teaching, it is possible to gain insight into the student teachers' collective agreement and willingness "to play the teaching's game of make-believe" (cf. Willbergh, 2011b, p. 69). A refusal, on the other hand, is a rejection of imagining the perceptible objects as a vehicle for constructing meaning (cf. Willbergh, 2011b, p. 66). Furthermore, a rejection could also address obstacles student teachers experience when exemplary teaching through Storyline is used for professional development in teacher education. Derived from this the research is based on the following assumption; for Storyline, as an imaginative and exemplary approach, to expand student teachers' mimetic didactic competence through the use of examples, subjective facets in their learning must be activated by the examples at play. This means that, the student teachers conceive the particular curriculum content, which in this case is sustainability, as significant and meaningful (cf. Willbergh, 2015, p. 342), and further that the content activates students' imagination in a way that bridges education and real life, and education and future for these student teachers (cf. Willbergh, 2015, p. 341).

Following the introduction, the theoretical framework used in this study will be outlined in accordance to Willbergh's (2011;2017) theory of mimetic didactics, elaborated with Wagenschein's (2000) theory of *exemplary teaching*. Next, the context of the study, *The Norwegian River Delta Storyline,* will be described, before the research design and methodology is explained. The results of the study are then presented, followed by a discussion of the core findings of the study. Finally, we will make some concluding remarks.

Theoretical Framework

The theoretical perspective used in this study, is derived from a *Bildung*-centred view on didactics (Willbergh, 2010, 2017). The concept of *Bildung* contributes to the students' personal development by *cultivating* the imagination and expanding the students' perspectives towards new and meaningful knowledge (Willbergh, 2011b, p. 69). Within this perspective, the purpose of schooling is thus to use "knowledge as a transformative tool of unfolding the learner's individuality and sociability" (Hopmann, 2007, p. 15), and further that "whatever is done or learned is done or learned to develop one's own individuality, to unfold the capabilities of the I (cf. Humboldt, [1792] 2000)" (ibid., 2007, p. 15). In the context of professional education, the essence of Bildung is to facilitate teaching that narrates the students' capabilities "for the practice they will engage in as professionals" (Beck, Solbrekke, Sutphen, & Fremstad, 2015, p. 447), which in this case means that the student teachers after graduation "know their disciplines and pedagogy to help children learn" (ibid.). In the following, we will outline the theoretical framework used in this study, focusing on how imaginative make-believe experiences can be activated through *exemplary teaching* used for professional development in teacher education.

The imaginative function in education (cf. Willbergh, 2015) where the learner transforms curriculum content into meaning, represents a creative learning process. This ability to allow for creativity and transformation is, within a Bildung-centred perceptive, necessary in order to bridge education and real life (cf. Willbergh, 2015, p. 341). To imagine something, Willbergh (2011b)states, "is to experience it 'as-if' it has happened to me" (p. 67). "As-if" experiences define "a concentrated meaning-making process in the present of the moment that works through the use of active imagination and re-contextualisation" (Willbergh, 2011b, p. 71). Accordingly, there is a need to select examples and to deal with these examples intensively. To try exemplary teaching there is a need to move beyond the platforms of instructions. Exemplary teaching is, according to Wagenschein (2000), a "platform of concentration at which we probe deeply into a subject or problem. This becomes not just a platform but a mirror of the whole" (Wagenschein, 2000, p. 165). In exemplary teaching with imaginative "as-if" experiences, the students are given the possibility to interpret examples as both subject matter and relevant future competence (Willbergh, 2017, p. 616). Following Willbergh (2011b, 2017), there are three intertwined aspects that need to be addressed, for teaching to facilitate make-believe experiences in a classroom setting. In this study, Willbergh's (2011b)theory is adapted to teacher education, to capture teacher educators' effort in activating student teachers' imaginative make-believe experiences.

The first aspect that needs to be met, according to Willbergh (2017), concerns the teachers' (in this case the teacher educators') effort and ability to engage student teachers in making prior memories of the subject matter to be recalled (cf. p. 619). Learning is cumulative, and through creativity, student teachers would be able to transform prior and new knowledge with their worldviews and thus expect to acquire new and meaningful competence as part of their professional learning. The importance of having the learner concentrating on the activity itself, is highlighted by Wagenschein (2000). He claims that it, "must be penetrative and intense entering into the matter at hand and into the soul of the learner" (Wagenschein, 2000, p. 166).

The second aspect of meaning-construction of teaching concerns, in line with Willbergh (2017), the articulation of examples. In this case, the teacher educators' selection of a concrete object or prop which captures the student teacher's attention, and so makes it clear that here and now it is "as-if" this example means 'subject matter' (Willbergh, 2017, p. 619). Willbergh (2015) uses a flower as an illustration, "making students imagine the flower 'as-if' it means 'local flora' for them in real life, as a supplement to imagining it 'as-if' it means 'biology" (p. 344). The nature of the example is thus able to convey general knowledge using something specific as the medium (Willbergh, 2010). In addition, for the example to generate make-believe experiences as a contribution to *Bildung,* the "objects must at the same time be perceived as relevant to their prior experiences" (Herbart & Stern, 2002; Klafki, 2000 in Willbergh, 2017, p. 619). The semantics of teaching in such a perspective is, according to Willbergh (2011b),"a kind of imagining that is highly self-referential and individual" (p. 67).

The third aspect of meaning-construction in teaching highlights, according to Willbergh (2011b, 2017), an aspect that emphasises, in this case, the student teacher's personal growth and development resulting in a new perspective on the world. Willbergh (2011b) uses again the example with the flower, "where the student understands the relevance of biology for his own life, and, thereby, a new understanding of the world is created: the world is seen as biology" (p. 68). It is important to find a balance between the object or the props representing a 'real world', and the subject matter. It enables the learner's ability to understand the theoretical aspects of subject matter, in order to accumulate new and meaningful knowledge for personal growth and development (Willbergh, 2011b, p. 68). Furthermore, the learner's creativity and spontaneity might affect the learner more deeply hence contributing to a fundamental transformation of knowledge and experience, in this case by the student teacher. Therefore, the reflection must not only reflect the whole of the subject matter, but also educate the whole of the learner; leading to a process of *Bildung* in motion (Wagenschein, 2000, pp. 162, 166).

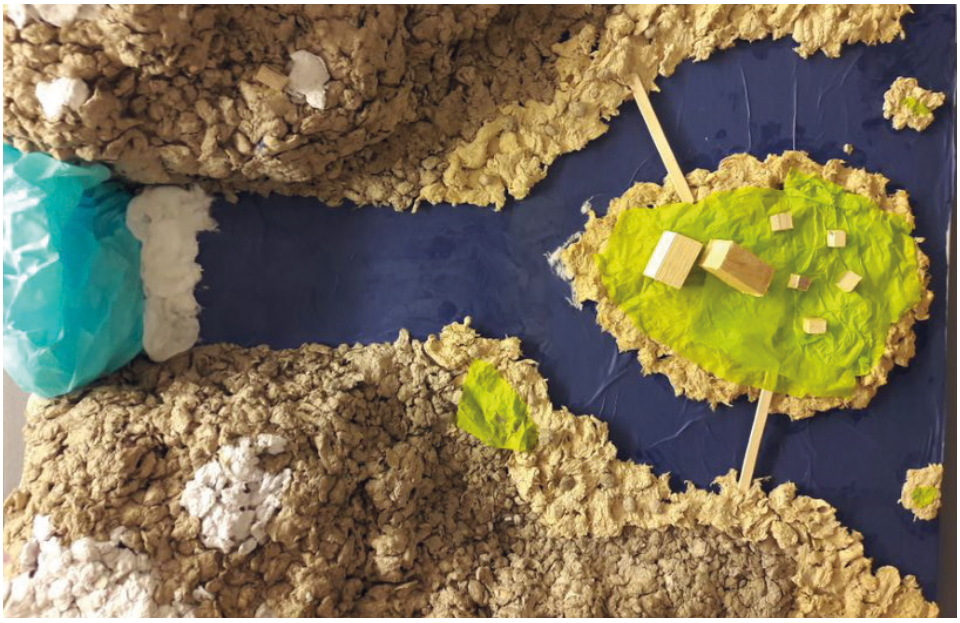
A Storyline with Sustainability as the Curriculum Content

The implemented Storyline, titled *The Norwegian River Delta,* involved 60 student teachers in the second year of a five-year master-level teacher education at a mid-sized Norwegian University College in Southern Norway who were preparing to teach grades 5–10. The Storyline focused on curriculum content related to sustainability principles and local environment and included six subjects: natural sciences, social sciences, English, arts and

crafts, drama, and pedagogy. Educating for a sustainable future is recognised as a key element in quality education (Education Act, 2017; UNESCO, 2018),and the teacher education programme shall thus "qualify the student to teach sustainable development as an interdisciplinary topic" (Nasjonalt råd for lærerutdanning, 2016, p. 9).

The project took place over a period of 1.5 weeks and included one seminar on sustainable development in advance of the Storyline, four days of experiencing TSA themselves and two days of post-Storyline workshops, processing and reflecting upon their experiences. Participation in the Storyline project was compulsory for the students. In addition to a former teacher with 20 years of experience implementing TSA in public Norwegian schools, seven teacher educators were engaged in the process of developing and carrying out the project. *The Norwegian River Delta Storyline* was based on five key factors necessary to succeed with the implementation of TSA in Teacher Education suggested by Karlsen, Lockhart-Pedersen, and Bjørnstad (2019b). The Storyline took place in an everyday 'realistic' situation unfolding in present time and was a "classical Storyline" (cf. Storhaug, 2009, p. 18) where the story was set in present time; here-and-now (cf. Eik, 2000). As the theme of the Storyline was the interdisciplinary topic sustainable development, interdisciplinary group composition in the Storyline was desirable. We therefore organised 12 Storyline groups consisting of five students studying different subjects (i.e. in no groups were all students taking the same courses). To improve and structure high-quality group work, we used cooperative learning as a framework (cf. Karlsen, Høeg & Høeg, 2020, see chapter 1 in this anthology).

The Storyline was driven forward by six events, including 24 activities and eight key questions (see overview in Table 1). The *first event* involved the development of the frieze, a model of their own river deltas, which the students themselves created out of pulp, tissue paper and wood (images 1–2,see activity 5 in table 1). Then, in *event 2*, each student made their own character (inhabitants) who lived in the delta. The characters were embodied by making a hand puppet with a personal card (images 3–4, see activity 9 in table 1). During the Storyline, the students were to stay in their roles as their character when solving the tasks in hand. In *event 3*, the local government, announced a competition reaching out to all the inhabitants in the delta, offering 10 million NOK (~1 million Euro) for the most innovative project aiming at making the delta more sustainable in the future (cf. activity 12).At the same time, a horrifying disaster occurred in the delta (cf. *event 4*). The inhabitants had to make an immediate emergency evacuation (cf. activity 13). Finally, when it was safe to return, they found their deltas polluted with garbage and dead animals (cf. activity 14). While physically cleaning up the deltas after the disaster, the student teachers (inhabitants) continued working on their concepts. *Event 5* captured the making of a news story to the local children aiming at reducing anxiety for the impact of the environmental disaster (event 5, activity 18). The Storyline ended with a final ceremony (*event 6*) where the inhabitants presented their final concepts to a jury, who then announced the winning project (images 5, activity 22).



Img. 1: The frieze. One example of Norwegian River Deltas, created by the student teachers (cf. event 1, activity 5, imagining and creating the river delta). Credits: Kristine Høeg Karlsen.

Img. 2: The frieze. One example of *a detail* in one of the friezes. Here: a lighthouse (cf. event 1, activity 5). Credits: Kristine Høeg Karlsen.

Img. 3 and 4: The characters. Two examples of inhabitants living in the river delta, represented by hand puppets (cf. event 2, activity 9). Credits: Kristine Høeg Karlsen.

Img. 5: The winning concept. A high-tech prototype bridge, made to capture fl ating waste and garbage from the river delta at the same time ensuring that fish and other organisms can pass. Credits: Kristine Høeg Karlsen.

Tab. 1: A summary of the key elements of the storyline 'The Norwegian river delta'

day	event	key questions	activities	
			In-role activities	**Out-of role activities**
1	Event 1: Imagining and creating the river delta		Activity 1: Visualising the river delta.	
		1) What kind of sounds do you hear in the delta?	Activity 2: Discovering sounds embedded in the Norwegian River Delta and creating music/sound composition with instruments.	
			Activity 3: Signing a group contract.	
		2) What does the river delta look like? What is a river delta?		Activity 4: Lecture on river deltas.
		3) You are about to create a river delta; what does your delta look like?	Activity 5: Creating *The Norwegian River Delta*, drawing a plan before making a 3D-model.	Activity 6: Teacher educators lecture the students on how to make the delta.
	Event 2: Characters in the river delta	4) Who are the citizens of the river delta? What kind of people visit or have an interest in the river delta?	Activity 7: Introduction to materials for making the puppets.	Activity 8: Students watch a video on how to make the puppets.
			Activity 9: Inhabiting the delta and making role cards.	Activity 10: Lecture on cooperative learning. Activity 11: Lecture on sustainable development.
2	Event 3: The competition	5) In what way can your municipality become more sustainable? What kind of diversity of people is there in your municipality?	Activity 12: A postman announcing a competition rewarding the most innovative project for making the delta more sustainable. Teacher educator in-role.	

day	event	key questions	activities	
			In-role activities	Out-of role activities
3	Event 4: The River delta is in danger	6) What do you think has happened to the Delta and what do you think is causing the pollution?	Activity 13: A disaster or catastrophe occurs in the delta, represented by an offensive smell, causing an evacuation of the inhabitants (students in-role). Teacher educators in role as the local government worker. Activity 14: The inhabitants (students) are then allowed to return to their deltas, which are now covered in garbage. Teacher educators in roles as municipality workers and a scientist. The scientist gives a warning on not to drink tap water. Activity 15: The inhabitants (students) are processing the danger and expressing reactions to it. Cleaning up the deltas. Activity 16: News story on 'radio' explaining the happening for the inhabitants.	
		7) What consequences does the happening have on your concept for the competition?	Activity 17: Consequences for the concept.	
	Event 5: Making a news story	8) What kind of knowledge do you need for communicating news to children?	Activity 18: The editor of 'news for youth' in the national television channel visits, and the students are to make a news story for children. Activity 20: Teacher educator in role as a capitalist, spreading fake news and trying to pay off he students to protect his own business. Activity 21: Preparing the presentation of the concept.	Activity 19: Lecture on how to communicate news to children.
4	Event 6: Presentations and the jury selecting the winner. A fi al ceremony of *The Norwegian River Delta Storyline*. Awarding the winner of the competition.		Activity 22: The inhabitants (groups) presents their concepts and show their news story to the jury. Teacher educators and one agent from Young Entrepreneurship are in role as the jury. The winning project is selected.	Activity 23: The groups disband. Activity 24: Exhibition of deltas, puppets and concept-products.

Methodology and Research Design

Data Collection and the Participants

The study adapts to a social constructive framework when collecting and analysing data, where knowledge is understood as situated, constructed and interactional (Berger & Luckmann, 1967). The study is part of a larger interdisciplinary research project, *The Storyline Approach in Teacher Education*, which aims to explore Storyline from various perspectives, and educational and didactic levels with the use of varied methodologies. Th s particular study is based on four audio recordings of the groups' reactions and discussions following the river deltas being polluted (cf. event 4, activity 14–15, Table 1). In addition, the data includes seven in-depth face-to-face group interviews carried out with 22 student teachers who had participated in the Storyline *The Norwegian River Delta*.

The research was approved by Norwegian Centre for Research Data (2019) and conducted in accordance to The Norwegian National Research Ethics committees (2016) and the university college's own guidelines for research data. The students received oral and written information about the aims of the research project, the data collection and analysis. Although the Storyline part of the course was compulsory, taking part in the research was voluntary. The students who participated in the study gave thus informed consent (Silverman, 2014), knowing that they could withdraw from the research at any time without explanations and with the assurance that there were no negative consequences for them. The written information included a consent form with check boxes to inform us of what sort of data sampling they agreed to. All involved participants have thus agreed to participate in interviews and that we took audio recordings of their discussions during the learning process. To ensure the students' privacy they were instructed to not use their own or other students' names in the interviews, but they did state what courses they were taking and their gender. One fi al methodological point is that the authors declare no competing interests in this study. We have planned and done the teaching, and the students attend our classes.

To make the *in-situ* data collection feasible during the implementation of the Storyline, students who had agreed to sound recordings were put in the same Storyline groups; five in total. Th oughout the Storyline the students remained in these groups. Th *in-situ* recordings during the Storyline were collected by placing hand-held recording devices on the tables of the five groups just before the students were supposed to share their in-role reactions (see, activity 15) when discovering that their deltas were full of garbage (see, activity 14). We were in particular interested in the dialogue in this setting to get an impression of the actual teaching situation ('see how others see'), and to gain insight into the students will to play out, "the teaching's game of make-believe" (cf. Willbergh, 2011b, p. 69). The *in-situ* recordings added a depth to the research questions, not possible to grasp through interviews, as they capture the students' immediate reaction and action *in* the situations.

The group interviews were conducted by the researchers immediately after the post Storyline workshops. Of the students agreeing to interviews, two students withdrew[2] their consent before the interviews were conducted, but were replaced by two students who gave consent to participate in the group interviews so that the number of students did not change. The groups were created with a mixed purposive sampling, where each group had three students who specialise in different subjects. The interview groups had a different composition than the groups in *The Norwegian River Delta Storyline*, as we wanted to have as large variation of experiences as possible to increase the variety of perspectives (Bryman, 2016). We were interested in various students' descriptions of experiences with Storyline in general and with their perspectives on make-believe interpretations in particular (in line with Creswell & Creswell, 2018).

We followed a semi-structured interview guide that posed a set of themes to be explored, using open-ended questions allowing follow-up questions and new ideas to unfold during the group interviews (Bryman, 2016; Kvale & Brinkmann, 2015). The interview guide contained 37 questions, which were divided into four themes, i) the student teachers' overall evaluation of *The Norwegian River Delta Storyline*, ii) their experiences with the aesthetic elements and imaginative make-believe interpretations, iii) their refl ction on the interdisciplinary group composition and group work, and fi ally iv) their refl ctions on using Storyline as a creative and imaginative approach in schools. The interviews were conducted in closed group rooms at the university college and lasted for approximately one hour. All interviews were recorded electronically and conducted simultaneously by the teachers and researchers who had implemented the Storyline project. In this case, this gave depth to the conversations, as the interviewer during the talk could ask relevant follow-up questions and clarify questions (cf. Kvale & Brinkmann, 2015, p. 170–171).

The audio recordings from both the interview and the *in-situ* recordings were transcribed by a professional transcriber following predetermined procedures. The audio was transcribed as closely as possible to the content, but in a formal written form and anonymised so that no names of students or teacher educators appeared in the transcriptions. Afterwards, the transcriptions were compared with the audio recordings to ensure high validity (cf. Creswell & Creswell, 2018, p. 483). We did this by comparing the transcription of the central dialogue with the original audio files and found the transcriptions to be satisfactory for the purpose of the study.

Analysis of data

The analysis of the data was based on Creswell and Creswell's (2018, p. 193) framework for qualitative and inductive data analysis and comprised three different phases. In the fi st phase, we read the entire data set to gain an overall sense of the meaning of the transcribed texts. Sections where students' implicit or/and explicit reactions upon their make-believe (as-if) experiences (cf. Willbergh, 2017) were identifi d, marked in the

2 One of the students could not attend because of work, and the other one withdrew without giving any explanations.

text, and then discussed in the research group. In this first phase, initial codes arose. Then, we picked the fullest and qualitatively most interesting interview, marked relevant sections and discussed tentative categories based on a combination of *in vivo* codes (Corbin & Strauss, 2015, p. 85) along with more theoretical labels. In the second phase, the more detailed analysis evolved, using a computer-assisted qualitative data analysis software program *QDAMiner 5* from Provalis Research. An extract from this coding process, is shown in figure 1. The transcribed interviews were imported using a Word format (illustrated in the middle of the figure). The program allowed for creating/developing codes in the left margin. The margin to the right gave an overview of the data coded. This program helped us managing, coding and analysing the data.

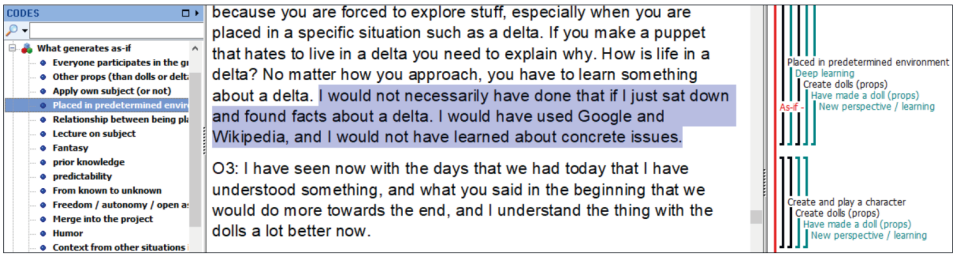


Fig. 1: An extract from the process of coding data using the software program QDAMiner 5.

During the process, where data was compressed and units of meaning were identified and labelled, we ended up with a list of 48 codes. To ensure that the coding was consistent throughout the analysis we developed a coding book (Creswell & Creswell, 2018, p. 202). In the third and final phase, the codes were categorised and developed into more abstract themes. Table 2 illustrates the whole process (phase 1–3). The first column contains extracts from raw data (the interviews), column 2 cites the name of the document (i.e. Case #1–3), units of meaning are shown in column 3, whereas tentative codes, codes and themes are covered by column 4–5.

Tab. 2: Examples from the process of coding data

Raw data	Document	Units of meaning	Tentative codes	Themes
When we build a river delta, and someone trashed it, it was like a glimpse of how it would feel if it had happened for real.	Case #1	The river delta felt as if it was real.	Making delta.	The making of the frieze and the handheld puppets.
I think it was fun to make hand puppets and to see how the personalities evolved into the person you wanted to be.	Case #2	Developing personalities.	Making hand puppets.	
When the Delta was trashed, I entered into my character, and said, 'my hand puppet is concerned with garbage and selective sorting of waste'. It became like, 'I can do this'. I used myself, to figure out what my puppet could do in this situation.	Case #3	Student playing out the roles.	Students entering into a character's role.	Taking on fictional roles and role-playing.
When the teacher came with the yellow vest and was so worried, I thought there was something serious going on.	Case #2	Students experiences of teachers in role.	Teacher in role.	

In the third phase of the analysis four themes emerged, capturing how make-believe experiences are created by second year student teachers as part of a Storyline, 1) The making of the props: the frieze and the handheld puppets, 2) Taking on fi tional roles and role-playing, 3) Applying, sharing and using each other's knowledge, and 4) Perceiving activities as is if they were pupils. These four themes constitute the results of this study, and will be presented below.

Results of the study

Th s part of the chapter presents the results of the study relating to how imaginative make-believe experiences unfold through *The Norwegian Delta Storyline*. The overall picture emerging through the analysis of data is that Storyline, as exemplary teaching with use of props, seems to activate subjective facets in these student teachers' learning. The study discovered four different components that appear to be contributing to make-believe experiences, outlined below.

The making of the props: the frieze and the handheld puppets

Our joint analysis shows that make-believe experiences are created from the students' own involvement in the products of imagination, which in this case comprises a Norwegian river delta and its inhabitants. Th s included the making of examples (props); the development of the frieze; the miniature models of river deltas (see activity 5) and the creation of the hand puppets; the inhabitants living in this delta (see activity 7–9). One of the students (interview group five), describes the relation between the making of the props and the imaginative make-believe experience as such, "I think it is important when you are taking part in a Storyline, that you actually make props. You cannot just claim that, 'I live in a delta'; you need the specific delta to *make believe* you actually live there." Another student (group 6) explains how the hand puppets came into play in the learning process,

> I think you learn more about yourself [by being in a role]. The hand puppet helps, because you are forced to explore stuff, especially when you are placed in a specific situation such as a delta. If you make a puppet that hates to live in a delta you need to explain why. How is life in a delta? No matter how you approach, you have to learn something about a delta. I would not necessarily have done that if I just sat down and found facts about a delta. I would have used Google and Wikipedia, and I would not have learned about concrete issues.

Some students explicitly describe a willingness or openness to the tasks involved in the making of props. One student (group 3) put it like this, when expressing how important the props were to his immersion in the activities,

> The more you just allowed yourself to merge into the project, [the more fun it became]. I committed, I just decided that – 'I am going to give life to this Nike sock', and the

> more I developed my character, the weirder he became, and in the very end, he became somewhat of a lone wolf. You must dare to take part and just let go, or else it gets boring.

Further, group work is perceived as important for the development of the props. Especially when crafting the handheld puppets, group members seemed to help one another to create the inhabitants living in the delta, illustrated as follows,

> I noticed that my hand puppet came to life because we talked with each other in the group, like 'who are you?' so my peers helped me create a lot of personality for my character. I would say that we played on each other and developed the roles together.

These handcrafting techniques did not create make-believe experiences themselves, but prepared the ground and conditions for the students to be experiencing "as-if" when, for example, the disaster hit the inhabitants ("them"!) in the delta (see event 4). However, issues relating to time appear to be a challenge for nearly all the students interviewed. They express a feeling of being overwhelmed and unsatisfi d; having too little time to accomplish too many tasks. One student claimed that the process was "characterised by too little time […] I was not able to make as much effort as I could have, and I was constantly struggling with my conscience for the rushed work". Th s might reduce the experience of "as-if".

Taking on Fictional Roles and Role-Playing

The role-playing part of the Storyline where the fi tion was played out, helped to create imaginative and intensive make-believe experiences engaging the students in the specific activities. Th s comprised both the parts where the students themselves entered into a character's role (see activity 13, 14, 15, 16, 18 & 22) and the parts where the teachers took on roles (see activity 12, 13, 14, 18, 20 & 22). The majority of the students interviewed experienced playing out the fi titious story as challenging, but in the end, very meaningful. One of the strongest "as-if" experiences reported in this study, is thus when the students *in* their roles, found the river deltas being polluted (activity 13, cf. picture 6). The following statements where one student describe this particular experience, can serve as example. The student (group 3) emphasises a special relationship between the delta (cf. prop) and learning of sustainability (cf. curriculum content), generated by make-believe,

> When we build a river delta, and someone trashes it, it was like a glimpse of how it would feel if it had happened for real. […] As you spend time developing something, and then it is polluted, even though the delta was not fully real, you get that feeling; because it is happening to you directly […]. So, I enjoyed this event because it gave me insight into the topic.

Another student (group 2) utters,

> When the delta, in which we had invested great effort to develop, was trashed, what came to my mind was just 'Wow!' I am not Christian, but let's say God did create the

Img. 6: Garbage on the frieze. An example of a polluted delta (cf. activity 13). Credits: Hanne Eik Pilskog.

> earth, and, suddenly, there's garbage everywhere. It is poetic. […] [a fellow student continues] It was awful seeing all that garbage ruining what we had spent so much time creating. It is awful to see the earth being littered.

In regards to the teachers' role-playing, one student (group 1) describes as follows how this helped the students commit to their roles,

> Watching the teachers daring to take on fi tional roles and deeply committing themselves to the story being played out, I think it made the students' involvement easier. It was cool to watch [them acting out]. […] [A fellow student continues] in my group, one of the rules in advance was that everyone committed as far as possible to immerse oneself into the story. And it worked out, and it fun when the teachers were involved.

In general, involvement in the fi tion highlights that the open and creative parts of the Storyline, were, by these students, contrasted to more common activities applied in traditional methods used in teacher education, as one students claims, "our program is influenced by traditional lectures, and I snore to death". However, the analysis also showed that a few students reported a feeling of impatience, when participating in *The Norwegian River Delta Storyline*. They felt the project was a waste of time and declined to take the imaginary and creative work with the examples or props seriously.

Applying, Sharing and Using Each Other's Knowledge

One of the main aims of using TSA within this programme of teacher education was to facilitate curriculum learning relating to the cross-curricular subject sustainable de-

velopment. When analyzing the data, it became evident that students' perception of the utilisation of their own subjects, either it being arts & crafts, physical education or natural science, affected the potential for experiencing "as-if", being the third discovered component. Most of the interviewed students felt that their own subjects came into play during the learning process, gaining new perspectives on curriculum content. One student (group 3) describes the satisfaction experienced when she suddenly recalled her prior memories of mathematics, during a task where they were supposed to recall their prior knowledge of 'delta',

> I was shocked because we were talking about mathematics and delta 'x' and 'y', and suddenly everyone was shocked, 'what, was that it?' I thought I just said some nonsense, being completely off when I used my mathematical competency, but actually it was correct? That was fun that you unexpectedly see the connections.

The students appreciated having experienced a real cross-curricular approach to learning that required everyone to share their knowledge and cooperate in order to accomplish the tasks, and to understand the complexity of the phenomenon. One student (group 1) acknowledges,

> It was fun to be the whole class. To meet people studying Norwegian and English, a bit more fun to be in a group with different subject combinations. I think that it was a nice way to get a comprehensive understanding of sustainable development. I hope and believe that the perspectives presented in this Storyline, get more people to think about these issues.

Another student (group 7) explains how they made use of each other's competencies,

> In my group, the five students covered all the subjects in our program. In that way it was clear how we should distribute the tasks. […] When working on the delta, the students with mathematics in their portfolio for example explained what a delta is[3], while the people with social science could share other perspectives relevant for the tasks, and together we became pretty skilled!

Nevertheless, a few of the students interviewed, felt that the Storyline did not add any new curriculum knowledge and that the project was irrelevant for subject matter, voiced as follows by one of the students, "I just didn't feel any of my subjects was represented in this project".

Perceiving Activities As If They Were Pupils

The analysis shows that imaginative make-believe experiences are created when, by engaging in the activities, the students understand the learning experience from the

3 The Greek uppercase letter delta is symbolised as a triangle (Δ) and gave the name to river deltas because the shape of the rivers are reminiscent of this symbol. In mathematics uppercase letter Δ is used to denote change.

children's perspective. When the students were refl cting on their own learning in the interviews, they drew parallels between their own experiences and what they thought pupils in school would appreciate relating to curriculum content. Most students were positive that pupils would be highly engaged in the events that Storyline facilitate, and this *knowing* appears to work as a catalyst for wanting to make-believe. One student (group 6) says,

> I believe that when using TSA in school, you are doing so many activities that you can reach a lot of pupils. It differs what the pupils think is exciting […]. So, I believe that this is a real opportunity to get *all* the pupils engaged in something they will fi d exciting and educational.

Analysis shows that through refl cting on the value *for* pupils, they recognised the potential for their own personal engagement through make-believe experiences. Th s is illustrated by the following statement, where a student acknowledges that because of the imaginative handheld puppets, pupils are forced to explore different perspectives, especially as they are to live in a specific e vironmental spot, like the delta,

> I had a lot of fun pretending that I made my alter ego with that hand puppet. Like I was an influencer etc. and really superfic al, and it was fun. But at the same time, I also had issues dear to my heart [a student colleague continues] Yes, so, it gives you the possibility to choose matter near your heart. [Or something contrary to your values] and if someone wonders, you can say 'it is not my opinion, it is my puppet'. Anyhow, the pupils can choose new personality trait far from their own personalities.

In general, the students express that the pupils will learn more about themselves through Storyline as a cross-curricular approach to teaching and learning because of the creative and imaginative parts.

Discussion

Methods on how to create good learning situations is important for future professional learning and identity development. Part of this learning includes the student teachers' knowledge of how to meet tomorrow's skills and competencies defi ed as the 21st Century skills (Bellanca & Brandt, 2010), but also to understand challenges relating to a more sustainable future, defi ed by United Nations sustainable development goals (UN, 2018). In this particular study, we have paid attention to *mimetic didactics* (Willbergh, 2017); a new perspective on how TSA can contribute to learning through the activation of imaginative make-believe interpretation of examples. By analysing teacher students' experiences, considered in the four audio recordings of the groups' discussions and seven group interviews, we found that make-believe interpretations were created in four different ways. In the following, structured by the theoretical framework, the results of the study will be discussed.

Recalling Prior Memories of the Subject Matter

Meaningful make-believe experiences of creative interpretations of *examples* rely on students' ability to build new knowledge on prior memories of the subject matter (Willbergh, 2017, p. 619). The teacher's effort in transforming and building knowledge on what the students previously know is important for the students' meaning-making process. *The Norwegian River Delta Storyline* included one seminar on sustainable development in advance of the Storyline. The seminar was meant to serve as a common learning platform for the students as it addressed various perspectives on the topic chosen for the Delta-Storyline, and to direct the students towards recalling their prior memories of the subject matter in line with Willbergh's (2017) theory. Almost all the students interviewed appeared to appreciate the seminar as valuable for recalling prior knowledge and learning about the topic. However, only one student explained how she used her prior mathematical knowledge in the making of the delta, and uttered that it was gratifying that she "unexpectedly saw the connections".

Furthermore, the students appeared to acknowledge the value of using each other's competences for obtaining a comprehensive picture of sustainability issues. Nevertheless, based on the analysis, some students experienced the Delta-Storyline as adding somewhat less new knowledge, and some students even felt that Storyline lacked relevance for their subjects. Making sure the student's specialist subject stay in focus is crucial for their ability to adapt to the imaginary work and hence contribute to personal development in order to enable a process of *Bildung*. The subject matter must constantly be brought to mind, so that the examples or props can "be deliberated on by drawing consequences for real and future life" (Willbergh 2017, p. 619). One student claimed that *The Norwegian River Delta,* was very relevant for "the social sciences, but as my subjects are physical education and mathematics, I have not been able to draw any connections to my subjects at all". Th s expression underlines the self-referential and highly individual aspect of meaning-construction (Willbergh, 2011b, p. 67).

However, as students are expected to build new knowledge on what they have previously learned (Willbergh, 2017), this is interpreted as a challenge in regard to the students' meaning-making process within this particular Storyline. The fact that the Delta narrative made connections to familiar actualities, such as water, nature and plastic pollution, strengthens connections to many of the students' credibility reference. The students' engagement in the pollution of the Deltas, showed that it was "*as-if*" the students lived in the Deltas for a short period. Hence, this Storyline narrative managed to engage the students deeply into the challenge of specific aspect of sustainable development, and moved beyond the platform of instruction, which, according to Wagenschein (2000), i s a prerequisite to facilitate exemplary teaching.

Capturing the Student Teachers' Attention through the Selection of Concrete Examples

From a mimetic perspective, it is the teachers' selection of concrete examples that according to Willbergh (2017) allows for both the interpretation "'as-if' they are real to the students (it concerns me!) and 'as-if' they are subject matter" (p. 618). It is the example's

separation from the real world that "makes it possible for students to see the world in new ways" (ibid., p. 617). In *The Norwegian River Delta Storyline,* the students were tasked with the making of two types of props (constituting event 1 and 2); the models of a river delta and handheld puppets representing the inhabitants of the river delta (activity 5 and 7–9). The examples served as a catalyst for the students' learning process, as they aimed at creating various perspectives of a 'fi tional truth' and transforming these perspectives into different interpretations of subject matter.

In addition, the examples created '*Bildung* in motion' as they engaged the whole student in bridging their connections to the real world by trashing the deltas with garbage from the students' local community (cf. Wagenschein, 2000). The *delta* for example, with the trash, represented a concrete medium connecting a particular environment (a Norwegian river delta) to the subject matter (the subject of sustainability). In this way, the Storyline appeared to activate students' preconceived knowledge of river delta and sustainable development with its features by contextualising a familiar situation for these students. The river deltas represent objects of imagination for the students, "as-if" it was the place where the students lived when engaging in this creative learning process. The constructed inhabitants of the delta with the students' living environment bridged together the known past and the unknown future. In particular, the environmental destruction and waste pollution represented a make-believe situation in a classroom context engaging the students as if it were a "real-world" experience happening to their communities.

The challenge of this Storyline was to reveal the connection between the props, as a medium of message, and the students' preconceived knowledge. In this case, the students' preconception of how waste pollution represents an environmental threat to ocean and river ecosystems was useful. However, based on the analysis of audio recordings of the groups' discussions and the interviews, the props engaged the students' attention fully, and facilitated imaginative make-believe interpretations; "as-if" for them, the prototype of the river-delta here and now is their local river-delta. Like one of the students claimed when the river-delta was trashed, "it was like a glimpse of how it would feel if it had happened for real". One reason for this feeling to arise, as we interpret the data, is that the students developed all the examples themselves concentrating deeply on the creative activities. In the making of the props, they connected with the prop, like one of the students explained, they needed to create the delta, "to make believe you actually *live* there". The importance of the students having been part of this process, is emphasised by Willbergh (2017), who claims that if "the students themselves are contributing examples from their own experience, the chances are greater that the object can be perceived as recognisable" (p. 619).

The analysis has shown that the time-issue was experienced as a hindrance for being in the imaginative process of making the examples. For the examples in teaching to represent reality, student teachers must have the ability to enter into the imaginative work, allowing make-believe experiences to occur (c.f. Willbergh, 2017). More time spent on the creation of the prop might make the student teachers more satisfi d or prouder with the props and this in turn, could help the students commit themselves to the story being played out. Wagenschein (2000), in his exemplary teaching, underlines

the importance of the learner being deeply affected, in contrast to the *getting-through-it* approach that tends to dominate subject teaching in school (p. 168). Further, teacher educators must thus take into account the fact that the process of making examples and playing out fi tional characters, are something many students are unfamiliar with (cf. Karlsen et al. 2019a). Some of the students might not have been role-playing since primary school, and according to Leming (2016) some students don't have what it takes to enter into the role of a character. If the use of examples is to contribute to meaningful make-believe experiences, some students would probably need quite a bit time, and in such occasions concrete help with developing, for example, characters. The time issue is also addressed by Karlsen et al. (2019b) arguing that student teachers in general need time to open up to the experience of TSA, and that more time may allow for more discussions and refl ctions, which is particularly important when applying open-ended questions.

A New Perspective on Sustainability?

The selection of examples generated a temporary feeling of commitment to the environmental challenges they encountered in the Storyline; most evident in event 4 when they discover that the delta had been polluted. One student described it as, "you get that feeling; because it is happening to you directly", another student put it like this; "It is awful to see the earth being littered". We interpret these feelings as real-world experiences, "as-if" it was their local neighbourhood environment that was fl oded with garbage, made possible because of the props; engaging and contributing to *Bildung* in motion (Wagenschein, 2000, p. 172).

In the Storyline this common-sense knowledge is developed further by key question six *What do you think has happened to the Delta and what do you think is causing the pollution?* Key questions in a Storyline, are open questions to drive future learning activities (Bell & Harkness, 2013, p. 13), and thus play a vital role in triggering students' refl ctions and active participation (Omand, 2014, p. 5; Omand, 2020, chapter 14 in this anthology). From a mimetic perspective, such questions are worth asking, as they make "students aware of the relevance of school knowledge" (Willbergh, 2017, p. 621), in ways that enable them to connect this knowledge to prior knowledge, theories and the overall subject of sustainability. Furthermore, they can activate knowledge about the local delta, and/or a Norwegian River Delta, as the *story* is about Norwegian residents. Based on our interpretation, the students express that they learn more, or they are allowed to dig deeper into the topic of sustainability, compared with traditional teaching, because of the engagement with the props and the ability to engage in the activities, particularly through open-ended key questions. Nevertheless, as the data collection occurred during and immediately after the Delta-Storyline, it is impossible to know *if* the students actually will *act* in new ways in the future concerning environmental challenges. The ultimate result of the meaning-construction in teaching is according to Willbergh (2017) that the "subject matter is experienced as meaningful to the students [and that] they will have gained a new perspective on the world" (p. 619). The purpose of teaching is life-long learning, to "understand self, world, and society for the sake of

democracy" (Willbergh, 2017, p. 624). This empirical study confirms the findings of Willbergh's (2017) study, that from a mimetic didactic perspective, the use of examples in teaching can represent a reality; or, in this particular case, a reality of sustainable delta development.

Through the Delta Storyline, the student teachers experienced how subject matter can be transferable to real life situations, by using examples. This experience is perceived as relevant for them, for engaging pupils in high quality learning as future professionals (cf. Beck et al. 2015, p. 447). The use of examples thus created a learning place, experienced as meaningful both within the area of expanding students' knowledge of sustainability, and developing applicable methods for professional teaching and facilitating deeper learning in a classroom context (cf. Willbergh, 2015; Storhaug, & Eie, 2020, chapter 12 in this anthology). As shown in the results, make-believe experiences were generated, in line with Willbergh (2015, p.34), when the examples activated facets of the student's learning that not only bridged teacher education and real life, but also had relevance for their future as teachers.

Conclusion

From the perspective of mimetic didactics, the study aimed to contribute a novel understanding of the potential for using Storyline, as exemplary teaching, in the student teachers' professional development. The study has gained insight into the student teachers' willingness "to play the teaching's game of make-believe" (cf. Willbergh, 2011b).In particular, the study explored how imaginative "as-if" experiences are created through a Storyline focusing on sustainability, implemented in teacher education for second year student teachers. In the study, we find that Storyline, as a creative and imaginative approach to teaching and learning, creates possibilities for student teachers to experience meaningful make-believe interpretation that contributes to a more profound picture of sustainability (as the content of the curriculum). Furthermore, the study shows that the students appear to transform the learning content into professional competence, expanding the student teachers' insight into how classroom instruction can be designed for making the school's content significant and meaningful for life. However, although most of the students reported a positive experience with the imaginative work, not all students experienced TSA in this manner. Factors relating to time issues and perceived lack of relevance for their subjects caused, for some students, a feeling of stress, overwhelm and impatience. Allowing enough time for students to make the examples and finding ways to ensure that the subject matter related to the props is perceived as relevant for the teacher students, are important when implementing Storyline in teacher education with the aim to facilitate learning for sustainability through imaginative work.

Having identified aspects with value for students' professional teachers' qualification, the implication for teacher education, as we interpret it, is that student teachers to a larger extent should be involved in a variety of approaches on campus, in order to develop applicable methods for exemplary teaching and classroom instruction. Having experienced, *in practice*, how the use of examples can activate and expand their own

perspectives towards new and meaningful knowledge (cf. Willbergh, 2011b, p. 69), the student teachers are positive that pupils will recognise the potential value for learning; hence bridge the gap between theory and practice, and past and future meaning-construction. In our study, the students seemed to transform the learning content into professional competency which, in this case, includes methods that fundamentally connect school and real life (and school and future). This confirms the result of Karlsen et al. (2019a) who identify a connection between the students' positive experiences with TSA and perceived transfer value to their future practice in school, claiming that participating in TSA, seemed "to have increased students' ownership of the approach and motivation for using it" (p. 157). As Willbergh's (2017) research is carried out in a school context, we would like to add perceived relevance for future professional work as a final aspect of relevance for the meaning-construction of teaching.

Based on this study, we claim that the mimetic didactic perspective thus can contribute to research in the field of teacher education, by allowing for concepts that explain how and why the fundamental elements of TSA (the using of imaginative examples) connect subject matter to real world events. This didactic perspective can also eventually contribute to exemplary teaching on campus which is important for future professional teaching practice. However, further research is needed both to expand theory in the context of teacher education, and to understand how imaginative make-believe experiences works in other types of Storyline. Studies that explore the outcome of student teachers' implementation of examples through TSA in schools are also needed.

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Chapter 5

Storyline: A Way to Understand Multimodality in a Learning Context and Teacher Education, in Theory and Practice

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Abstract. Th s chapter aims to shed light on how Storyline in teacher education can bridge the gap between pedagogical theories and pedagogical practice. We do this by using both research-based knowledge, and proven experience. Theoretically, this study is based on a model by Lindström (2012) which includes four dimensions of (aesthetic) learning: learning *about, in, with* and *through.* Empirically, the study is grounded in our own practice, and in particular a Storyline, which has involved approximately 500 student teachers. It has been developed and carried out over a period of five years. The implementation of a Storyline was a way to both bring methodology into teacher education and to contextualise the notion of multimodality. In this chapter we discuss three assignments incorporated in the Storyline, which have been identifi d as essential to the student teachers' comprehensions regarding both a Storyline's content and learning potential, and a multimodal teaching and learning approach. Our conclusion, in the view of Lindström's model, is that the learning process, actuated in the Storyline, interlinks theory and practice into a strong entity.

Keywords: Multimodality, theory and pedagogical practice, proven experience, learning process

Introduction

The understanding of theory and practice as two sides of the same coin is a major issue in Teacher Education Programmes in Sweden (Hegender, 2010; Karlsson Lohmander, 2015; Häggström & Udén, 2018) as well as in other countries (Hennisen, Beckers & Moerkerke, 2017; Peercy & Troyan, 2017). In order to remove barriers and create bridges between pedagogical theories and classroom practice, we have implemented a one-week Storyline, included in a course on Swedish for primary school, in teacher education. Storyline is one way to implement methodology into the classroom of becoming teachers. During the training-based courses, the student teachers are expected to connect literature and pedagogical theory with the actual task of teaching in classroom at school with pupils (Häggström & Udén, 2018). On the basis of the complex practice of teaching, the students are also expected to theorise what happens in the classroom. Additionally, they have to make their own lesson plans, anchored in pedagogical research. Didactical issues are to be raised, specifi d and given practical forms and to be discussed. Back at campus they have to report their experiences with regard to current pedagogical theories and methodology, and to draw conclusions that will help them forward. Th s is quite a challenge. We have noticed that students often discuss *what* they

have done during the training and to a certain extent *how* they did it. Th s is also in line with Lauvås & Handal (1992/2015) who argue that we need a more profound discussion about *why* student teachers have done something in the classroom (Lauvås & Handal, 1992/2015). Th s why-question needs to be addressed in teaching practice as well as in learning experiences. Th s is one core aspect of teaching (Curtis, 2013; Augustsson & Boström, 2016; Gidlund & Boström, 2017). Our Storyline is an attempt to help our student teachers to relate theory with their own experiences and knowledge. In particular, we want to implement the notion of multimodality and thereby to help our students to gain the ability to use multimodal methods in their upcoming profession. Walsh (2015) found in her study, that when students were involved in multimodal tasks, they were enabled to articulate their own learning, and that there was opportunity for both students and teachers to scaffold learning. In line with Walsh's results, we presuppose that students will be helped in their understanding of multimodality by taking part in this multimodal Storyline.

In this chapter we present a Storyline conducted in teacher education, and we do this with a threefold aim. Both in the Swedish curriculum for compulsory school (The National Agency for Education, 2011)and in the higher education ordinance (Ministry of Education and Research, 2014), two strands are emphasised as the foundation for children's education and teacher education. On the one hand is scientific ground or research-based knowledge, on the other hand is proven experience or best practice. The former is the dominating aspect at the university and teacher education, whilst the latter has been side-lined in the major discussion of teacher education; teacher education has become part of academisation, i.e. theoretical content is centred rather than refl cting on school practice (Carlgren, 2009). Th s chapter is an attempt to meet a call for counterbalancing the present bias in the direction of scientific basis; hence we base the text on our proven experience. However, we do this theoretically, using a theoretical model by Lindström (2012).The reason for this choice of theory is to respond to and to refute the prevailing appreciation of practical classroom methods as lacking scientific foundations (Morberg, 1999), and to respond to the critics contending that methodology in teacher education has been reproductive and prescriptive. The second purpose is to look at Storyline from a multimodal perspective and thus to make a contribution to the theoretical discussion on Storyline's learning processes. Thi dly, we want to bring in some of the student teacher's voices on Storyline, focusing on their meaning-making as becoming teachers.

The chapter is structured in five key parts. First, we describe Storyline as a multimodal pedagogical approach, building on a compound theoretical foundation. Second, we describe a theoretical model of learning (Lindström, 2008), which underpins the use of Storyline in teacher education, in particular the needs for student teachers to not only learn *about* pedagogical theories, but *through* them. Thi d, the general idea of the Storyline used in our teacher education is outlined, which is followed by refl ctions through the theoretical model by Lindström (2008). Fourth, we present some of our students' perceptions of the Storyline work. The chapter ends with concluding thoughts on the dichotomous attributed theory and practice in teacher education, and specifi ally on the learning process of a Storyline.

As previously mentioned, the Storyline in this study relies on a multimodal perspective (e.g. Kress & van Leeuwen, 2001; Jewitt, 2008; Danielsson & Selander, 2016; Jewitt et al., 2016). Multimodality characterises communication where images, gestures, sounds, writing and other modalities interact. Th s Storyline has been developed over a period of five years and this text includes parts from a pilot study in which students' perception of the Storyline was examined. In this text, we have selected student teachers' written statements from an evaluation form in order to exemplify students' anonymous opinions.

As previously stated, we wanted to integrate pedagogical methodology into the course, and we wanted a sustainable thoroughly worked out method which had been tried out for a long period of time. We regard Storyline as such a method. The major focus in this course is on communication, and multimodality has emerged as an appropriate perspective on communication. Specifi ally, we have included artistic expression and particularly visual art. To us, it is apparent that Storyline and multimodality goes hand in hand. The main theme for the Storyline has been didactics for language developing in grade 1–3(year 6–9). The content and the framework are mainly the same each time with only small changes. Drama, music and visual art have been part of the course before the Storyline week starts, in preparation for the activities, which might make it easier for some of the students. We have between 75–100 students each semester, who are divided into three classes. One teacher educator leads and facilitates one class; thus, three educators are involved in the Storyline week.

Expanding Storyline's Pedagogical Foundations

The origin theory to underpin the learning processes during a Storyline was based on social-constructive learning theories which consider learning as an active process that produces knowledge (Olusegun, 2015). Th s puts focus on the learners which makes education student-centred and implies that students have to be active and to use their own experience in the process of knowledge creation (ibid). Constructivism derives from the work of Dewey (2009), Bruner (2002), Vygotsky (1978), and Piaget (1972). Dewey believed that learning is an active process and that students need to be involved in authentic learning situations. He advocated experiential education. Bruner promoted a holistic view on education and developed a scaffolding theory, including structure in learning and its central role in teaching, and how to guide the learner to achieve the task in question. Vygotsky highlighted that social interaction plays a crucial role in learning and developing. According to Vygotsky, learning occurs fi st on a social level and then on the individual level. Piaget, like Dewey, Bruner and Vygotsky, also believed that learning is an active process. Piaget, whose main interest was children's learning, claims that when children interact with the surrounding world, they continually add new knowledge, building on previous knowledge. One premise of the ideas of these scholars is that learning is the outcome of mental construction, i.e. students learn through putting new experiences and information in conjunction with their previous experiences and knowledge. In addition, it is assumed that learning is affected and influenced by the context; hence learning is situated (Lave & Wenger, 1991). Th s view

on learning has had a huge impact on recent learning theories and teaching methods and has constituted a number of education reforms, curricula and syllabus (Olusegun, 2015). However, regarding Storyline, there have been various ways to support this pedagogical approach. For example, activity pedagogy, with historical roots from Comenius (2002) and Rousseau (1979) who both highlight the authentic experience as the most central way to learn. Close to this movement is the philosophy of experiential learning (Dewey, 2009). Dewey argues that problem solving is a creative and effective way to transfer knowledge from concrete experience into abstract thinking. He claims that real experiences involve the senses. The Storyline approach includes influences that correlate with all these ideas; for example, the emphasis on activity, social interaction and scaffolding, experiential education, building on existing knowledge, problem solving and the claim that learning is situated.

Multimodal Perspective on The Storyline Approach

All these substantiating theories are indeed essential, nevertheless, we suggest including a multimodal perspective on Storyline. Multimodality is a theory of communication and social semiotics (Kress & Van Leeuwen, 2001). Kress and van Leeuwen argue that all communication is multimodal, which implies different semiotic systems of meaning making. These systems are written and linguistic (vocabulary and grammar), visual (e.g. colours and shapes), audial (e.g. sound, music, silence, noise), spatial (e.g. position, direction, proximity) and gestural (use of facial expressions and body-language). Pedagogical classroom work too, can be understood as multimodal processes (Jewitt, 2008). Classroom work in general is undeniably multimodal; multidimensional and multimodal expressions are intertwined in the process of both teaching and learning. Th s is manifested in the interaction between the students and the teacher while communicating (Jewitt, 2008). The use of textbooks, picture-books, interactive digital boards, computers and more are already a multimodal communication (Kress & van Leeuwen, 2001). By including this perspective, we highlight the signifi ance of the use of different modes of expressions, such as visual arts, drama, rhythm and dance, sounds and music, in addition to written and oral language and also body-language (e.g. Kress & van Leeuwen, 2001; Jewitt, 2008; Danielsson & Selander, 2016; Jewitt et al., 2016) which we all consider crucial in a Storyline. Accordingly, a Storyline is multimodal. Since Storyline encourages communication of all kind, we have chosen to implement a Storyline in one of our courses: *Language as a communicative resource* (University of Gothenburg, Course Syllabus, 2017).

Learning about and Learning through a Storyline

Our Storyline is based on the idea that students learn *through* and not only *about* content relevant to teacher education. Inspired by Lars Lindström's theory of aesthetic learning we draw on his model of learning *about, in, with* and *through* (Lindström, 2008, 2012). In our case the focus is both on learning the concept of multimodality and learning the pedagogical approach of Storyline. Th s is done with the assumption that

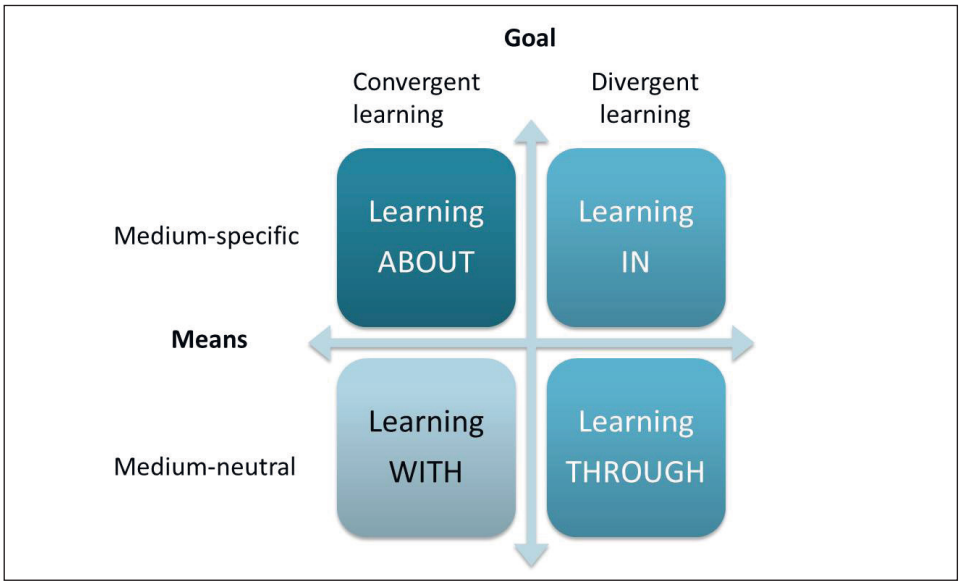


Fig. 1: Four ways of learning (Lindström, 2012).

students teachers need to experience the meaning of multimodality themselves in order to understand the concept. The same applies to the meaning of Storyline, i.e. student teachers need to experience the features of Storyline in order to deeply understand its potential. By extension, this will provide a discussion on how to teach pedagogical theories and methods in teacher education.

By using the model of Lindström (2012) we want to highlight a key aspect of importance for higher education pedagogy, particularly for teacher education. To start with, we need to ask ourselves: what kind of learning is envisioned by implementing a Storyline and multimodality? Storyline and multimodality stands for the *means* (see figu e 1). The answer to this question is linked to the *goal* in the figu e. The aspect we want to consider is the distinction between learning *about* and learning *in* and *through*. Learning only *about* the concept of multimodality or *about* Storyline as a pedagogical approach, will be limited to *convergent* learning, which is learning something as we learn facts. Thus, it is theoretical knowledge gained by listening to a lecture and/or reading a text and the goal is to achieve basic knowledge which is given in advance. By contrast, learning *in* and *through* multimodality and Storyline opens up for *divergent* learning, which is to involve an active, creative, experiential and often exploratory learning process. The goal here is rather to use previous knowledge in a new way, in new circumstances or contexts and with new intentions and aims (Lindström, 2012). In conclusion, we have to provide both convergent and divergent learning opportunities in order to ensure that our student teachers master basic knowledge about Storyline and multimodality, or whatever knowledge we want them to develop, and that they can use this knowledge in practice; master embodied practise.

Learning *about* multimodality will help students to understand that communication includes several modes that are combined in various ways. Learning *in* and

through multimodality is to try out these modes in different combinations and in new situations. Likewise, learning *about* Storyline will support the understanding of the different features included, i.e. learning *what*. Th s will also expose the theories behind and *how* to use the pedagogical method across the curricula. Learning *in* and *through* a Storyline makes the students take part in an actual Storyline themselves, and to try the different features. As we already mentioned, learning only *about* is not suffici t. On the other hand, only learning *through* may not give substantial knowledge, even though the knowledge is embodied. As mentioned in the introduction, student teachers also need to know *why* they should include Storyline and multimodality in the classroom. Lindström, too, is very clear that we need a variety of learning assessment tools, and that both convergent and divergent learning is better when combined and intertwined.

Method, Material and Analysis

Th s study is based on the approach of practice-based research (Rönnerman, 2018) and biographical research on action modes (Zinn, 2004). Practice-based research is commonly used in pedagogical research and educational sciences in order to concentrate research relevant for teacher, teacher education and school practices. One aim is to gain deeper understanding of an educational practice. In this study, we utilise this approach to scrutinise our own practice in order to understand the multimodal tasks used in our Storyline, and thereby to capture student teachers' meaning-making processes. In line with Stenhouse's (1975) reasoning, this might support us, as researching practitioners, to change our existing ways of working. As Stenhouse (1975, p. 143) states: "It is not enough that teachers' work should be studied: they need to study it themselves". However, these kinds of studies also need to be critical and scientifi ally grounded (Carr & Kemmis, 1986). One purpose of the method of biographical research on action modes is to conceptualise structural categories. In order to do so, we use the model of Lindström (2012) and the four categories of learning. Th s critical practice-based research has the potential to improve and to develop one's understanding of the practice (Rönnerman, 2018). In order to develop such understanding, we had to gather information and material that could be analysed, interpreted and compiled in the research group. The material included in the study is the course syllabus, the course's Storyline plan and three of its assignments, and students' written course evaluations[1]. The Storyline assignments have been chosen since they have been regarded as critical by the students and because of their multimodal character.

The course syllabus, used in the study, is part of teacher education at the University of Gothenburg. As course teachers we already had access to the syllabus. Th s syllabus is the foundation for how the course is planned in detail, and the Storyline is a crucial component to guide students in reaching the course objectives. Specifi ally, the Storyline work, aimed at fulfilling four learning goals related to multimodal communication, working models and didactic tools. The Storyline plan has been developed since

1 Th s particular evaluation took place in the autumn 2015. The quotations are chosen because they are representative for those who answered the evaluation.

2014 by us and other teachers at the university. The course evaluations were collected during a period of three years, thus from six classes entailing approximately 500 students. The evaluations were gathered from the university's digital platform, filled out individually and anonymously by the students, after the course.

The material was analysed and coded through the model of Lindström, and the concepts of learning *about, in, with* and *through*. In the following, the outcome from the study is displayed by presenting the introduction of the storyline, and the three assignments of the Storyline.

Outcome

Here, we will give a brief description on the Storyline's introduction and how the Storyline proceeds from that introduction, before describing the three assignments studied, which are the basis for the following analysis. Students' written expressions are followed by our interpretations, guided by Lindström's model.

The Introduction and Beginning

We start the Storyline-week with a minor play in the form of a talk-show. It starts with welcoming music and one of the teacher educators is the host, dressed in glittery jacket, dancing through the audience of student teachers, showing a photo-story about Storyline and its benefits. Two guests are invited to the talk-show, (the other two other teacher educators, one in moustache as Steve Bell, one wearing a scarf, being Sallie Harkness), and they represent the founders of Storyline and they are interviewed and critically questioned by the host. Another song about how we should blame everything in society on the teachers, which of course is a humoristic, yet critical, view on the role of teachers, is played. The show ends with a music video by the Swedish group ABBA, called *When I kissed the teacher*. Then the show is followed by a traditional lecture about Storyline, explaining more deeply the features of a Storyline. The whole section ends with a lecture telling about a Storyline conducted in two school-classes, and then there is a break.

> Student 2: "From the beginning, I was quite sceptical, but when the teachers showed how to have fun while introducing the Storyline, I was really inspired. I felt I could do something similar myself".

After the break the Storyline starts right away. The teacher educators are now a principal of *The Best School*, and the student teachers are addressed as the principal's employed and carefully selected teachers. Now the Storyline is put into action; key questions are asked, refl cted upon, discussed, shared and exposed, characters are created and presented. The students are divided into groups of five, representing a team of teachers, thus, the characters are teachers. Everything that happens during the week affects these characters who will have to solve different problems and create situations, artefacts and constructive dialogues.

Student 4: "One thing that I will bear in mind and take back into the training course".

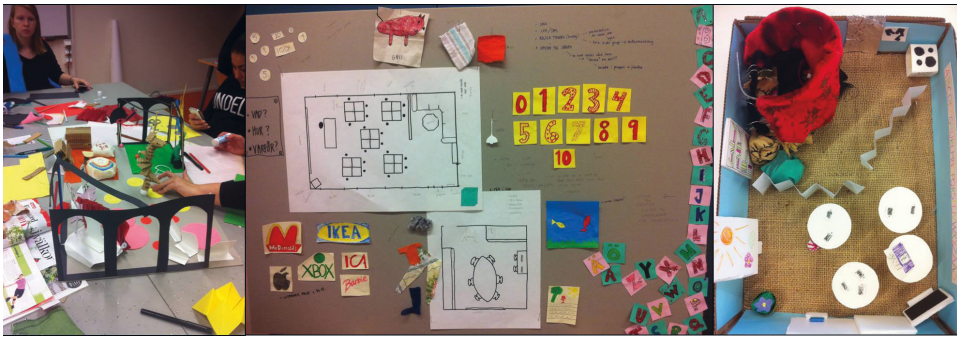
So, why did we choose to start the Storyline like this? First of all, we wanted to "live like we teach", i.e. we wanted to present Storyline by being *in* a Storyline and *through* multimodal expressions. By doing so, we tried to be role models as teachers and we also demonstrated the *practice* part of a methodology. Additionally, we wanted to start in an active, positive way and "give ourselves" to the student teachers. We also anticipated that this would be an extraordinary experience quite different from the everyday experience of being a student teacher. Furthermore, instead of starting with the convergent teaching tools, we assumed that this lively start would be a way of promoting divergent thinking and facilitating the understanding of Storyline's pedagogy. Still, we wanted to introduce The Storyline Approach as the thoughtful and developing approach it is. The introduction is therefore *about, in, with* and *through* Storyline. Though, this is from a teaching point of view, now we wanted to take it to the level of learning.

Three Multimodal Assignments in the Study's Storyline

We would argue that everything you do in a Storyline is multimodal. Here, we want to highlight three assignments that will expand the common notion of literacy, as meaning reading and writing and maybe verbalising. These assignments include artistic modes in order to promote multimodal communication. Again, we wanted the student teachers to learn in an active and creative way, thus, to learn *in* and *through* different modes and to combine those modes in new and maybe surprising ways. Here, we will concentrate on the assignments of:

- Creating multimodal school environments in order to enhance language developing, indoor or outdoor.
- Planning for and conducting a multimodal language developing lesson.
- Multimodal presentation through *mise-en-scene* (staging), presenting the learning outcome from the Storyline week.

These assignments were essential features of the Storyline narrative and were conducted in character. Key questions preceded the first two assignments, the first in whole class, and the second in the small teacher-team groups. The last assignment was planned altogether in the small group of five students. These different levels of independence follow the idea of scaffolding (Bruner, 2002) and the notion of Zone of Proximal Development (Vygotsky, 1978). That means that the learner increasingly develops a capability to conduct certain activities or solve some issues with less help and finally without help. In these assignments, course literature builds a foundation, thus we encourage discussions that will help students to connect theory and practice. We will briefly outline these assignments hereinafter and then reflect upon them through the model by Lindström (2012).



Img. 1: Creating multimodal environments. Photo: Margaretha Häggström.

Creating Multimodal Environments

The second day, *The Best School* receives a letter from the municipality executive board, saying that they want all schools to invest in and strengthen language development. They also want the school to adopt and embrace a multimodal perspective on communication. In particular, they call for a multimodal school environment, indoor as well as outdoor. Money is no problem, the motto is: just do whatever you like. The groups have to come up with a prudent plan and present it for the other groups. Each group then will be responsible for one area to develop further, or one classroom each. They start by sketching and then begin to create. The result will be displayed and presented to the class. When all groups have presented their work a joint discussion on learning processes and theories that support their ideas follows.

> Student 1: "At last! I have longed for using creativity! Th ough this task, when we had to discuss what a multimodal classroom would need, I understood the importance of including different modes. It is not just for fun, this is democracy!"

Th s assignment was fi st focused on learning *with* multimodality since the students were designing environments, artefacts, and furnishing, with the purpose of supporting literacy developing *with* the help of multimodal approaches. After deciding what to design they also had to actually create the designed objects, which promoted learning *in* multimodality. Th s mean that they had to explore and experiment in a way that was not foreseeable from the beginning, thus, this could be a surprising learning and outcome to both the students themselves but defin tely to the teacher educators.

Multimodal Language Developing Lesson

One morning the principal (the teacher) gets a phone call from the minister of education. The minister had heard about the fantastic work done in *The Best School*, and now wants to pay a visit. Th s is done quite realistically – the teacher's smart phone is actually ringing, and the teacher acts embarrassed, apologising for taking the call during class and then miming: "it is the minister of education", looking surprised and thrilled. She hangs up and tells the student teachers (now teachers) that the minister will come the

Img. 2: Holding multimodal lessons. Photo: Margaretha Häggström.

next day to observe how they work with language development in a multimodal way. Each group then plans for a literacy lesson, emphasising the multimodal perspective. The day after, they will conduct a mini-lesson with their peers acting as pupils. Each group has twenty minutes for this assignment. The minister is present, represented by a man's suit and tie and a paper copy of his face at the top. Afterward we put talk bubbles next to the minister to show how pleased and excited he was about the teacher's innovative ideas and implementation of creative language work. We use talk- and thinking bubbles so that the characters become more alive. Th s is also a way to understand the difference of being professional as a teacher and being private as an individual.

> Student 6: "When we had to plan and conduct the lessons, my role as a future teacher became real and I understood what this was about. It was both scary and fun".
>
> Student 3: "It was hard to be pretend to be a pupil, I mean, how far should I push it?"
>
> Student 1: "Even if this lesson was kind of fake, I learned a lot about planning lessons, how to think and to relate it to the School curricula. I think it was educational."

The second assignment had a standpoint of learning *about* multimodality and learning *with*. Th s involves having being part of lectures, literature reading and associated seminars. Knowing *about* multimodality then implies knowing what multimodality means and entails. Knowledge built on learning *with* multimodality is to understand what multimodality may bring, how it can be used in order to scaffold language development and to understand how a teacher can utilise different modes when teaching. In this sense, multimodality is both used to support learning processes, and a teaching approach; both students and teachers can express themselves in multimodal ways. When the students planned their lessons to be held, they dealt with learning *in*, that is they had to discuss and decide what, how and why to do in a certain way. Finally, when they conducted the lesson it was learning *through*. In this case, it meant learning through the

Img. 3: Multimodal presentations. Photo: Margaretha Häggström.

pedagogical method of Storyline, through different modes and combining them, and through the role of a teacher. Th s is an example of how to bridging theory and practice.

Multimodal Presentation

The last day of the Storyline is a great day. It is time to sum up the Storyline week and the experienced outcomes. What and how have the students learned? Th s presentation will be conducted through *mise-en-scene* (staging) in a multimodal way. The groups can use any kind of expression and way they want to. The introduction-show from the fi st day might be an inspiration. TV-shows of different kinds serve as stimulus too; TV-news, talk-shows, competition programmes, children's programmes, movies, commercials and more are models for the presentations. Sometimes the presentation is prepared like a long commercial film, a little musical, a rap song or a fairy-tale. Often the students combine different expressions and mix prepared elements as for example video recordings and photo stories with live performances. These multimodal presentations are generally much appreciated and highly valued by the students and teacher educators.

> Student 3: "We worked so hard with this assignment, but it was as if time stood still. It was difficult to balance the serious and the fun parts, but I think we all learnt a great deal. I haven't thought of performing as a way of learning, before."

In the last assignment the learning was mainly *through* multimodality. Th s time the student teachers had the opportunity to display all their accumulated and coherent knowledge *about* multimodality. However, the assignment itself was not supposed to only uncover such knowledge but to drive the students to act *through* multimodality. When planning this assignment, they also learnt *in* multimodality, trying different options. The assignment is open in its conception which can make the students a bit confused and insecure at start. Therefore, the teacher educators need to reassure and encourage the students to follow their own ideas, and to be confide t in their choices. There is no right or wrong ways to do this, or rather, all ways are right. Most of the time these presentations are a success; they show creativity, inventiveness, originality and most of all enjoyment and happiness.

Student Teachers' Perception of this Storyline

According to the course evaluation, most of the students are very optimistic regarding Storyline as a pedagogical approach:

> Student 1: "It was really good to try out and to identify with the Storyline, instead of simply read about it".
>
> Student 2: "It was valuable to experience different methods within the Storyline and to discuss what these methods are good for".

These two excerpts highlight the practical part of the Storyline work, which a substantial number of the respondents did. We interpret this as a call for bridging theory and practice, which in turn is interpreted as a need for learning both *about, in* and *through* Storyline.

> Student 3: "Storyline engage the children and makes the process of learning fun".
>
> Student 4: "To use multimodal didactic tools in an educational situation mean that I now have a deeper understanding of how I should think, and it has also given me a lot of ideas before my future job".
>
> Student 5: "What has been the most valuable was to learn to work multimodal, because that is such important to be aware of and particular in today's school".

These three students are thinking of their upcoming profession as teachers and the usefulness of the required knowledge they now have. Th s seems to be twofold: fi stly, for them as teachers, who will educate the next generation, secondly, for the children of the next generation. Hence, in our interpretation, this reveals an estimation of knowing *what*, i.e. to know *about* Storyline and multimodality, and also to know *how*, that is to know *how* to perform as a teacher and *how* this performance may affect children. Following Lindström, this knowledge might be gained by learning *about*. But this will only be knowledge based on theory. Adding learning *in* and *through*, which is always practice-based, will deepen the knowledge *about* and make it embodied. Embodied knowledge guides you in action (Merleau-Ponty, 1945/2014).

> Student 6: "The Storyline was incredibly fun although I was not so positive from the beginning. But I was really surprised! I didn't think I should learn so much, but I have learnt very much and I will defin tely work with Storyline with my future pupils!! So fun and instructive!"

We fi d this student of interest for several reasons. In every class we have a few students who are sceptical at the beginning. Th s is understandably one of them. We do not think that doubting and being sceptical is a negative attitude, quite the opposite, it is natural to be uncertain when being confronted with something that is new and maybe different. It is also vital that teachers and student teachers critically examine pedagogical methods. However, this student seems to change her or his mind rather fast, to her/his own surprise, which is also interesting. Lindström (2012) stresses that divergence learning, i.e.

learning *in* and *through* promote *surprising knowledge*. In other words: knowledge you did not expect or anticipate occurring. Th s could also be said as signifi ant for learning as such, thus when the understanding of a phenomenon or a situation changes such that we view the phenomenon or situation in a new way (Illeris, 2003). Furthermore, this is also signifi ant for creative thinking (Vygotsky, 1978). Th s student, although sceptical, probably had an open mind and was responsive and flex ble. We think it is crucial for student teachers to distinguish between their own learning preferences and what they need to perform as becoming teachers in order to reach all students, and this is what we see in this student's statement. That is also why it is essential that student teachers are given the opportunities practically to try out pedagogical methods and theoretically deliberate on the benefits and constraints of different methods.

Discussion and Concluding Thoughts

In the previous sections we have interpreted the three Storyline assignments through the model of Lindström (2012),in order to examine the Storyline work in relation to the aspects of learning *about, in, with* and *through*. Th s has been a way of scrutinising our own work and to study if we are doing what we think we do. The implementation of a Storyline was a way to both bring methodology into teacher education and to contextualise the notion of multimodality. It was also an attempt to connect theory and practice. Building on pedagogical theories that emphasise students' activity and interaction (Dewey, 2009; Vygotsky, 1978) we are assured that teaching and learning methods, i.e. didactics, ought to be experienced by the individual herself. In other words, student teachers should practice the method themselves in order to deeply understand the core of the method, to experience how the method influences learning processes and to embrace a method as a becoming teacher. The outcome of the study shows this to be evident. Student teachers' meaning-making is very much about learning *in* and *through* the method. The three assignments studied here, are designed to support and push the students to "live the method" and to physically test a multimodal way to express themselves. Teacher students seem to need the practice work when understanding pedagogical theories.

Together, these assignments were intended to combine convergent and divergent learning. In order to accomplish this combination, we included elements that we could predict the outcome of, such as knowledge *about* multimodality and *about* Storyline. Th s *knowing about,* builds a foundation for the other assignments which included elements that are more experience-based, explorative and unpredictable. The combination of learning *about* and then learning *in, with* and *through*, as we understand and use the learning concepts of Lindström, is a perfect match, because it strengthens the students. It makes them feel comfortable to experiment and to try approaches they might not have met before and to use modes such as music, dance and visual art. Multimodality has thus been both the means and the goal.

As declared in our introduction, this chapter is not based on research per se, but on proven experience. The Swedish Education Act stipulates that Education in compulsory school should be built on scientific ground and proven experience. Proven experience is defi ed as professional experience gained through co-operating work between

teachers, a work that is conducted by a systematic documented way which also will be spread (The Swedish Agency for Education). We regard Storyline as being very much a proven experienced approach. However, it has currently achieved more attention in educational research (Ahlquist & Lugossy, 2015; Nutall, 2016), notable also in this anthology. Even though it has its foundation in practical classroom work, it also has had a rigorous basis of educational theory from the beginning (Bell, Harkness & White 2007). Storyline has then continuously been viewed through various theories and through the work of different philosophers, educators and researchers (Falkenberg, 2007; Schwänke & Gronostay, 2007). Th s chapter has been an attempt to contribute with yet another perspective by bringing in multimodality and the learning model by Lindström.

Conclusion

In this chapter, we have illustrated how Storyline in teacher education can be a fruitful way to connect theory and practice. By supervising The Storyline Approach in parallel with teaching the concept of multimodality, this Storyline aimed to instruct and facilitate theoretical and practical knowledge simultaneously. Indeed, it is our fi m belief that the dichotomy between theory and practice is only unproductive and undesirable thought patterns that show an archaic view on epistemology. As shown here, in the view of Lindström's model, the learning process actuated in the Storyline, interweave theory and practice into a strong entity.

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Chapter 6

How Does Teaching with Storyline Affect Teachers, Students and Families?

Wendy Emo and Kenneth R. Emo

Abstract Th s study examines how Storyline influences a school learning community: Why do teachers use Storyline? How does Storyline affect the school community? Motivation research and teachers' lives research informed this study. We conducted an ethnographically-informed instrumental case study exploring the subjective effects of Storyline. Data analysed includes teachers' refl ctive journals and semi-structured interviews with teachers, the principal, parents, and former students. Storyline teachers experience challenge, curiosity, fantasy, and control, factors which highly correlate with motivation. Former students referred to curiosity and fantasy, and they had high recall of events and factual understanding. Storyline allows teachers to reach their full potential through using their creativity, curiosity, and intellectual exploration.

Keywords: Storyline, teachers' lives, motivation

Introduction

Storyline can be considered an innovative curricular strategy: it is a unique approach to engaging students in required curriculum. We have used Storyline in our elementary classrooms and in teacher education courses; we have enjoyed watching students engage in Storylines. We wondered about the ways that Storyline as a school-wide strategy influenced the learning community in an elementary school and how Storyline impacts students and teachers.

Prior to any involvement with Highland School personnel, we developed two research questions, "Why do teachers use Storyline?" and "How does Storyline affect the teachers and their students?" At our fi st meeting with Highland teachers, the teachers requested that we add two additional research questions: "How does teaching with an all-school Storyline affect the school community?" and "What do parents and former students think of Storyline?"

Background

Prior Research in Storyline

Several studies indicate that Storyline teaching has positive effects on learning. These studies generally centre on motivation or creativity; we include summaries of six here.

Hofmann (2007) conducted a study of Storyline in England. The elementary students talked of the originality of their work; they said that they learned better when

being imaginative or creative. Hofmann suggested that to increase student engagement and ownership of learning, "knowledge should not be purely 'acquired' but 'lived' or 'felt'" (ibid., p. 73), such as through Storyline.

Language researcher Smogorzewska (2012) focused on creativity in language use. Polish preschool children who were taught language through either Storyline or an Associations Pyramid. The children who used Storyline had signifi antly higher creative use of language.

Motivation is a theme throughout some Storyline research literature. Mitchell-Barrett (2010) measured student motivation in England. During a Storyline, students were much more motivated to attend school and did not realise they were doing academic work. Midwestern United States teachers found that their students were highly motivated while using Storyline and that the teachers themselves were enjoying their teaching (Emo, 2010). Swedish elementary students learning English through Storyline demonstrated "greater willingness to speak English … (and produced) longer and more complex written texts" (Ahlquist, 2013, p. 96), showing high task motivation and achievement along with higher student self-confide ce. Kocher (2019) found similar result in motivation and self-confide ce with German secondary students learning English.

The School in this Study: Highland Elementary.

Most public schools in the United States are neighbourhood schools which accept all students from the local area; schools provide transportation. Public "magnet" schools provide focus, such as schools of performing arts or science; the school population is from a wider area and families must provide their own transportation. Highland, a magnet school focused on Storyline, admits students through a lottery. At the time of the study, there were few other schools in the USA which focused on Storyline.

We focused on Highland Elementary School in Bend, Oregon, USA. All of the teachers use Storyline and rarely have a day without it. Classes at Highland are organised as kindergarten only, fi st grade only, second and third grades combined, and fourth and fi h grades combined. The year of the study began with several changes: a new principal, a remodelled building, iPads, and required reading texts. Families are involved through volunteering and fundraising; their fi ancial goal for 2020 is to raise $55,000 with 70% of those funds supporting Storyline and the other 30% supporting other school activities (Highland Elementary PTO, 2020).

There are almost 400 students at the school. At the time of the study, the school had 7% students with disabilities (state-wide, 13%) and 13% of students considered economically disadvantaged (53% state-wide) (Oregon Department of Education, 2014).

Two magnet schools in the same city as Highland do not use Storyline school-wide. These schools have very similar student populations to Highland's (low percentages of students who are migrant, limited English proficie t or economically disadvantaged, or students who receive special education services). For the five years previous to the study, attendance in these demographically comparable schools was lower by 5 to 8 percent than Highland's, and test scores were lower by 10 to 15 percent in language arts and mathematics (Emo & Emo, 2014). In these five years, Highland's student test scores

for grades 3–5 were one of the two highest in the state (ibid). The teacher turnover rate at Highland is 2%; at the two demographically similar schools in the same city, the turnover rate is 12% (Oregon Department of Education, 2018), similar to Oregon's 11,3% for elementary teachers (Carver-Thomas & Darling-Hammond, (2017).

Conceptual Framework

Our conceptual framework is based on research in motivation, educational psychology, and teachers' lives.

Within motivation research, one of the studies most relevant to Storyline was conducted with early educational computer games (Malone & Lepper, 1987). Players were more engaged and stayed with tasks longer when the games offered (personally meaningful and appropriate level of challenge, elements of curiosity and fantasy, and some player control (ibid., p. 248–249). Settings, characters, and incidents in Storyline provide teacher-guided but learner-selected challenges, control, and fantasy; Storyline teachers provide the learners with surprises and situations which elicit curiosity.

Choice is an aspect of control; choice appears to be highly relevant to motivation in educational tasks. Denton (2005) provides a summary of 32 research studies on the results of giving students choices: students are more likely to be on task, work at personally challenging tasks, persist in the face of difficulty, apply more creativity and organisation skills, and behave in socially constructive ways. Storyline offers many opportunities for student choice; students create the settings and characters, and students also make decisions regarding their learning and presentation of their learning.

Choice (or lack thereof) affects teachers as well. Teachers' lives research reveals that teacher-initiated innovation correlates with higher teacher motivation (Huberman et al., 1993). Higher teacher motivation correlates with more meaningful educational experiences for learners (Day, Sammons, Stobart, Kington, & Gu, 2007). Being able to innovate affects teacher retention as well. Teachers are more satisfi d and more likely to stay in schools in which they feel trusted to make educational decisions and innovations; "narrowly defi ed and imposed curriculum and teacher competencies repel good people from entering and/or staying" (Fullan, 2001, p. 332). Storyline is one way that teachers innovate in their work.

Method

We designed an ethnographically-informed, instrumental case study to examine the research questions. Instrumental studies seek to understand an educational event, programme or curricular strategy with the purpose of using the information to better understand how the fi dings can be generalised (Stake, 1995).

The study relied upon interviews and refl ctive journals. Interviews with teachers, the school principal, and former students and their families were semi-structured (Appendix A). We visited the school five times during an all-school Storyline and conducted interviews with participating teachers each time. Teachers also recorded their

observations and feelings about the teaching and learning and submitted those journals to us weekly (Appendix B). Not all participants responded to all interview or journal prompts due to the nature of the study which encouraged conversation and thoughtful responses rather than strict adherence to questions posed by the researchers, who were outside the teachers' experience.

All interviews were digitally recorded. Interviews were transcribed word-for-word. Data analysis proceeded in two stages. In the first, we examined the transcribed conversations for responses according to the research questions which they answered. In the second stage, we further sorted the responses by type of response. Through this qualitative analysis, grounded in the transcribed data, themes emerged.

We aggregated the interview and journal data and represented it together in the tables in the results section. The tables are organised according to the questions in the interview prompts. Representative quotes from the participants are provided in each type of response.

Participants

The participants in this study were teachers at Highland school (13), the school principal (1), and former students and their families (7).

All classroom teachers volunteered to participate in the study. Due to unforeseen circumstances, one teacher was unable to participate in any of the interviews and two participated in only one interview. Some of the teachers have additional certifications or training in drama, science, or reading. All but two had taught at a school without using Storyline prior to their employment at Highland. Some lead Storyline workshops for teachers, and some have had their own children attend the school. All consider themselves experienced Storyline teachers.

This was the principal's first year with Storyline. Prior to being hired, he had been a principal at a school in another state. He was unaware of Storyline before his work with Highland.

According to the teachers' request to add Storyline families to the study, we interviewed seven families to find out their perspectives on Storyline. Teachers suggested families for participation, such as parents who were leaders in the school parent organisation; some parents referred others to us. Some families were interested in participating but unable to do so due to time constraints. The seven families who did participate consisted of parents, grandparents, and children who were between two and six years from their last year of attendance at Highland.

The Storyline During the Study: National Parks

Highland teachers often work in grade level teams through the same Storyline; they also use their own Storylines independent of other teachers. Every two years Highland teachers organise an all-school Storyline in which the classes have closely related settings. The Storyline we observed during the research was *National Parks*, which empha-

sised science learning. As with all Storylines at Highland, it incorporated most other academic areas.

Each classroom's Storyline setting was in a different national park. The characters were all junior park rangers. Most incidents related to all the classes, so the students worked through the same incidents at the same time, such as trash in the park or tourists who were missing, injured, or obnoxious.

Results

In this section we provide the data resulting from the analyses of the teachers' journals and the interviews with the teachers, the administrator, former students, and families of former students. The four research questions are addressed in the separate sections below. Where teachers made quite similar remarks, we provide one representative comment. When remarks showed variety within a type of answer, we provided more than one teacher's response.

Why Do Teachers Use Storyline?

Th s research question is best viewed through the teachers' answers to all of the questions as shown in Tables 1–9. Table 1 provides teachers' answers to just one part of this research question: "What drew you to teaching with Storyline?" Generally, the teachers were introduced to Storyline through seeing it in action.

All the teachers and the principal were introduced to Storyline through direct interaction with another teacher; they saw it in action. Nine interviewees said they realised that Storyline provided ways to attach meaning and purpose for the students, such as Abby's remark that students wanted to be involved due to the mystery and excitement. Storyline fit with teachers' philosophy of teaching and learning, as stated by five and stated by Avery: story is how "human brains work." For Avery, Storyline teaching is what should be happening in the classroom.

How Does Storyline Affect the Teachers and Their Students?

Th s research question had multiple related questions. Each is presented in a separate table (Tables 2–8). In general, the teachers at Highland Elementary felt excited and interested in the teaching with Storyline.

Seven of the teachers used the word "excited" to convey their feelings (Table 2). Storyline is interesting to them (four), they get to be creative (three) and they feel passionate about their work (three). As Aubrey said, "I am just as excited as the kids."

We asked teachers to compare how teaching with Storyline affected them versus teaching with other methods (Table 3). Responses mostly were regarding their own engagement, learning, and fun.

Tab. 1: Reasons teachers and the principal gave for what attracted them to Storyline

Type of response	Frequency of response (n=14)	Representative responses
I observed Storyline and was positively impressed	14	I fi st observed Storyline: • as a parent (5 teachers) or extended family member (1 teacher) • in colleagues' classrooms (4 teachers) • in a workshop given by a teacher (required for employment at Highland, 2 teachers and 1 principal; my choice, 1 teacher)
		I'm really excited and just for myself to have experience as a parent (during Storyline) and then to, just be, like, put that energy and excitement into it for my students. (Denny)
		(My colleagues') students seemed to be really excited and then one of the teachers across the hall invited me to come over and take a look. … I thought, "Wow, this sounds really neat." (Avery)
		I just fell in love (with Storyline). (Emily)
Storyline provides meaning and purpose	9	The depth of vocabulary and understanding of concepts within a story, within Storyline, is so authentic. (Denny)
		The mystery and excitement for the kids that something happens in it. Instead of just showing up to learn, it's happening. I think that makes it so exciting and where they feel so involved. (Abby)
Storyline fit with my philosophy of education	5	Th s is how I believe human brains work. They're wired to receive and understand stories across all cultures. … That's kind of how human beings think and make sense of the word. And so, education outside of that to me doesn't quite make sense. (Avery)
		My philosophy of teaching was a good fit for Storyline. (Bridget)

Table 1: Reasons teachers gave for what attracted them to Storyline.

Tab. 2: Teachers' perceptions of how Storyline affects them

Type of response	Frequency of response (n=13)	Representative responses
I'm excited	7	I am just as excited as the kids. (Aubrey)
		It makes me love my job because it's so fun. . . . It makes me excited to work and puts the fun in it. (Hannah)
I'm interested	4	I get really interested in (our Storylines). (Nina)
I get to be creative	3	What keeps me engaged in my teaching is that I get to be creative and look for ways to tie the curriculum together. . . . Instead of just being told, "Hey, here's the science book, open the lesson, teach it," which to me isn't as engaging, I get to be creative in fi ding the resources and then writing them into how that would look like for the students. (Aubrey)
		I need to have a creative outlet in my (professional) life. A lot of what I developed in myself as an actor and, more specifi ally, as a director, comes out constantly in Storyline. (Lucy)
Storyline keeps me passionate	3	It keeps me passionate about my job. . . . After the hook, we were just as excited as the kids were, . . . instead of getting burned out with the same old thing. (Aubrey)

Table 2: Teachers' perceptions of how Storyline affects them.

Tab. 3: Teachers' perceptions of the personal benefits of Storyline as compared to other methods with which they are familiar

Type of response	Frequency of response (n=13)	Representative responses
Engaging for me in ways that other methods are not	9	If all I did was standardized tests and follow page 6 of the teacher's guide for some standard curriculum, I think I would be burnt out. (Bridget)
		I think we all grew up doing topic studies. But when you live it in the classroom and you're actively participating in the story, it infuses your teaching with excitement. The kids see that you're invested in what you're teaching and I think that magically just forms this wonderful connect between you and your students. (Chelsea)
		It's much more engaging for me. (Cheryl)
Get to learn subject matter	5	I'll get really geeky about it and get into it (learning the subject matter of the Storyline). (Bridget)

Type of response	Frequency of response (n=13)	Representative responses
Fun	4	I get to have fun with the kids naturally. (Hollie)
		It makes it fun, really fun. (Cheryl)
Personal challenge	3	Overall, it just makes me a stronger teacher because I have to think beyond just delivering a curriculum. I'm more of an engineer. . . . That makes me continue to have to get better at my craft nd what I do because of, just, the challenge of it. (Aubrey)
		It allows me to feel like I'm challenged. (Nina)
Excitement in the kids	3	I see that excitement in the kids. I don't see it when I'm following a prescribed curriculum. (Bridget)
Change	3	It's always growing and changing and becoming better. (Emily)
		I love that they (the Storylines) change all the time. (Hollie)
		I just love it, love it, love it. I just love how there's such a different feel for each part of the year because of what the classroom looks like and what the kids are doing and what they're pretending. (Abby)

Table 3: Teachers' perceptions of the benefits of Storyline as compared to other methods with which they are familiar.

Nine of the teachers said that Storyline engaged them in ways that other curricular methods had not (Table 3). Five mentioned enjoying learning subject matter content and that Storyline provided this opportunity. Four mentioned fun and three each said they enjoy the challenge of teaching with Storyline, seeing the children's excitement, and the change with the Storylines.

Teachers addressed how Storyline affects the learning environment (Table 4). The teachers closely connected this question to the question of how Storyline influences their overall teaching, so we combined the answers to these questions. Their answers centred on student ownership of their learning, meaningful connections, the teachers' own identities, and student attitudes and interactions.

All thirteen teachers commented on the students' ownership of their work. Abby connected this to meaning (mentioned by eleven teachers): "When they are the ones coming up with the plan, it gives more meaning" (Table 4). Aubrey elaborated: "these science activities aren't done in isolation." Eight teachers cited student enthusiasm, and seven described positive interactions between students. Storyline was so integral to their teaching that seven of the teachers said something similar to Avery's "Storyline is who I am as a teacher." Five commented that Storyline organised both days and semesters: "It's part of you all day long" (Hannah).

Tab. 4: Teachers' perceptions of how Storyline influences their overall teaching and learning environment

Type of response	Frequency of response (n=13)	Representative responses
Students have more ownership in the curriculum	13	They (kindergarteners) make the plans (for the frieze). They draw prototypes, . . . they build it. There's just so many opportunities for interaction between students for collaborative work, team work, discussions. . . . There's plenty of opportunity for them to work on a project and decide how they want to complete a project. . . . It gives them some ownership in that they can decide. (Cheryl)
		When they are the ones coming up with the plan, it gives more meaning. (Abby)
Meaningful connections between subject areas and story	11	I'm trying to create meaningful connections for kids all throughout the day. (Avery)
		It just gives meaning to what we're learning. (Bridget)
		The act of creating that frieze connects those kids with those places. (Lucy)
		What is so important about Storyline is that these science activities aren't done in isolation. They are attached to our park and given meaning so students will remember. They're not just doing a science experiment because they've been told to do it. (Aubrey)
		(In a previous school we did a unit on Japan.) We learned about the culture a little bit. We had a meal. But we weren't really characters. So we were more like on the outside, enjoying that culture, where with Storyline, the kids are the chefs. They're in the middle of it. . . . It's not just looking from the outside. They really see things and are experiencing things as if they are little chefs or they are going to be a park ranger. (Cindy)
		We do a ton of science here in our Storylines and the kids don't think we're doing science. They don't know we're doing math because it's Storyline. (Chelsea)
Students are enthusiastic	8	My kids came in with tons of facts about our park today just from going home and researching it because they were excited. It wasn't even homework. (Hollie)
		It's fun and it's exciting and it makes the learning fun. It brings it alive; it brings our classroom alive. (Hannah)

Type of response	Frequency of response (n=13)	Representative responses
I cannot imagine teaching without Storyline	7	I couldn't really pull out teaching from Storyline anymore. It's like Storyline is who I am as a teacher. . . . (Teaching) wouldn't make sense to me anymore. I don't think I could do it. I wouldn't do it. (Avery)
		If I didn't have Storyline, I wouldn't – I don't think I'd still be teaching. (Lucy)
		I can't imagine going back to not having it ever. Even for a semester. . . . It is such the highlight of the day. (Abby)
		I can't imagine not teaching with Storyline. (Emily)
Student interactions are affected positively	7	They learn how to talk (to settle differences). One kid was like, "Nooooo!" and then another kid was like, "Well, let's say that in a nicer way," like, "How can we talk about that?" . . . It's impressive what they figu e out on their own when I step out (of the way of their interactions). (Hollie)
		I refl cted on what all of these students (at Highland) were accomplishing, . . . the negotiating, planning, problem solving, and creating happening around me. . . . The older students were independent from adult supervision and were organising and planning by themselves, critiquing their work and fixi g design problems as they came up. (Bridget)
Storyline organises both days and semesters	5	It's part of you all day long. (Hannah)
		The story is the overall organizer of the day. (Avery)
		It lends you to looking ahead for a whole semester, ... because it's all got to tie into the story. (Cheryl)
Students are more on task	3	When they're in character, they're thinking, "Well, would a chef do this? Would a chef do that?" Sometimes it raises the (behavioural) expectation. If they're in culinary school, they wouldn't be silly with the kitchen tool because they're there for a purpose. (Cindy)
		They're doing it because they have to (for themselves); if they don't do this science experiment, they'll never solve the mystery. . . . There are problems left u solved unless they do something about it through Storyline. (Aubrey)

Table 4: Teachers' perceptions of how Storyline affects their overall teaching and the learning environment of their classrooms.

"What are you currently learning about Storyline?" Teachers' responses to this question did not reveal any aspect that had to do specifi ally with learning about Storyline. Their replies fit better into answering the question on continuing struggles, which is where

we enfolded their answers (Table 5). The struggles included time, integrating the new district requirements, keeping the story and characters alive, and maintaining a good balance of control between students and teacher.

Tab. 5: Teachers' perceptions of their typical struggles while teaching with Storyline

Type of response	**Frequency of response (n=13)**	**Representative responses**
Time	8	The overall biggest struggle is time. (Lucy)
Integrating new requirements	6	Having programmes or mandates that don't fit and then how do you make that work? . . . I have to know what the packaged curriculum is in order to integrate it. (Avery)
Keeping story and characters "alive"	6	It's challenging to make sure that the characters are still continuing to live. . . . I sometimes forget to just allow the students to share what's going on from the character's perspective. . . . To feel what's happening . . . to actually do some journaling or some drama work that allows them to really feel like their character. . . . That's the part that feels sort of fluffy sometimes but it's just as important (as the obvious academic pieces of the Storyline). (Aubrey)
		Having the frieze be interactive and having the characters be more interactive. (Nina)
		Keeping the story alive so that it's not just a series of activities that you do that are fun activities, but that it has a story that fl ws through the whole thing. (Cheryl)
Balance of control between students and teacher	5	Sometimes I have a picture in my head of how it's supposed to be and that's not at all what they want. So part of it is me having to let go so that they can have the culture that they want to create and not have me control it. (Hollie)
		There's always a balance between teacher control and student control. . . . I'm starting to understand the difference between controlling the structure and controlling the outcomes. (Lucy)
Planning	4	It's always a challenge for me to do all the planning and get everything up but then to really follow (the plan I made). . . . Just, "Okay, what is the goal?" and "Why?" (Abby)
		(When I'm planning the new Storyline), I'm still working on the why—like, what's the story that I can kick it off ith. (Avery)

Table 5: Teachers' perceptions of their typical struggles while teaching with Storyline.

"The overall biggest struggle is time," said Lucy (Table 5); eight teachers mentioned this. Six teachers said that keeping the characters and/or plot alive could be a struggle; Cheryl said she wanted the learning experience to be "not just a series of activities that

you do that are fun activities, but that it has a story that fl ws through the whole thing." Five teachers mentioned that maintaining a balance of control between teachers and students could be difficult.

Student engagement in the story also entered the teachers' answers to, "What evidence do you have that Storyline is an effective teaching method?" (Table 6). In addition to giving examples of student engagement, teachers told us of formal and informal evaluations, student personal growth, student recall, and the effect of Storyline on family vacations.

Tab. 6: Teachers' perceptions of evidence which shows that Storyline is an effective teaching method

Type of response	**Frequency of response (n=13)**	**Representative responses**
Formal evaluations	8	I do pre-tests and post-tests. . . . I've got writing samples . . . projects . . . models . . . speeches . . . . Just like any evidence for teaching. (Avery)
		I've felt my student work lagging (while teaching) with fi delity (to the new required curriculum). . . . I just saw some writing work come to life again (because I was allowed to integrate with Storyline). (Aubrey)
		(While conferencing with a student about his everyday writing versus his work for the Storyline culmination), I said, "What do you think happened? Why does this look just so good? Why is this (one) so much better in quality?" And he says, "Well, because I knew it was for Storyline and we were going to be showing people." (Abby)
Student personal growth outside of evaluations	6	You'll have a student that's extremely shy or doesn't work well with other kids. But when you give them a character to be . . . then they don't have to be themselves. It gives them the confide ce to stand up. . . . It gives them just a sense of purpose. (Chelsea)
Student engagement when in Storyline	5	I had this one student who was pretty shy and quiet. And it was hard to get her very motivated. Well, she was the manager at the culmination. I mean, it was this whole side of her that I had never seen. (Hannah)
		Our behaviour kids love Storyline, love Storyline. They love it. They love it. (Chelsea)
		Kids go home and they're talking to their parents about what's going on in the Storyline. (Bridget)

Type of response	Frequency of response (n=13)	Representative responses
		One of my lowest readers/writers started making a book about (how tourists should take care of the park), all on his own. He would get his book out and take it with him to recess so he could work on it. Th s is the kind of thing that makes me know Storyline is powerful. (Abby)
Families change their vacation plans	5	(The students are) actively engaged, they're excited, they're motivated, they think it's fun. (Chelsea)
Recall from former students	4	(The families) are planning their trips; they (the students) are asking their parents. The parents are going to make that happen. They learn about something, but they learn about it so passionately that they really want to go see their park. (Chelsea)
		(A former student came back) and said, "My professor gets confused about the order that they (the events from the American Revolution) went in, but I lived it, so I know the order that they go in." (Hollie)

Table 6: Teachers' perceptions of evidence which shows that Storyline is an effective teaching method.

When citing evidence of the effectiveness of Storyline (Table 6), eight teachers referred to formal evaluations of student work. Six teachers cited student personal growth, and five each mentioned student engagement and the impact on family trips. Four talked of long-term student recall, such as the order of events in the American Revolution (Hollie).

Highland teachers also shared with us their everyday experiences. These comments were in the teachers' frustrations, their successes, and their appreciation of their colleagues (Table 7).

Tab. 7: Teachers' comments on daily experiences in Storyline teaching

Type of response	Frequency of response (n=13)	Representative responses
Collegiality	9	We're always checking in and helping each other and improving, . . . being critical friends. (Aubrey)
		I get my best ideas for Storyline when I work with my team. (Hannah)
		I see other people (teachers) and they're so inspiring with it (Storyline). Luckily, I'm surrounded by those people. (Bridget)

Type of response	Frequency of response (n=13)	Representative responses
		A colleague reminded me how important it is to really bring the characters to life and make sure to spend time on introducing them. . . . I would have failed to do this important piece without the reminder of my colleague. (Aubrey)
		The people that work here give you the confide ce that you can do it. (Chelsea)
		We divide up the work. (Aubrey)
Successes	9	(One student) is easily the most challenging student I have ever had the opportunity to work with. Well, he turned to me with his eyes wide and full of love and whispered, "It's so beautiful!" . . . It was a fantastic moment. And I forgot about my worries and remembered why it was so important . . . so that kids could have an out-of-character moment of awe, wonder, and excitement for this new Storyline. (Lucy)
		The new student in class was so surprised and delighted by the idea of me playing make-believe with all of them in this new world we've created together. (Lucy)
		(The students' ideas for the top of the totem) include a circle of children holding hands to represent joy, togetherness, and community—almost their words—so I think they are getting the idea (of what a totem is). (Denny)
		(The) Storyline character-building activity . . . required a great deal of self-control, respect, and listening. . . . The community building part of this activity was priceless. . . . I could not have planned this moment any better for some amazing learning. (Denny)
		One of the kids said to me, "I can't wait until after recess!" (Hannah)
Frustration	8	Is it okay to hate frieze-making? Today I hate it. (Avery)
		There was glue everywhere, parts stuck on the wrong place, and the kids did not follow the steps in order. (Hollie)
		To get the skills they need, sometimes that means lessons that don't move the story forward. (Avery)
		I feel like I'm driving this, not the kids. (Denny)
		I am typically able to predict how much time each lesson or activity will take. There are times, though, when I am dead wrong. . . . I thought it would be a quick hour . . . (it) will now be taking four days. (Hollie)

Type of response	Frequency of response (n=13)	Representative responses
		We made it through half of what I had intended to do. There is a bit of process drama that goes with learning the water cycle and each time the kids started play-acting collection to evaporation then to condensation—I lost them. The sillies took over. (Denny)
		It was pretty chaotic. . . . I was pulled in many different directions. (Abby)

Table 7: Teachers' comments on daily experiences in Storyline teaching.

The teachers' comments on their own daily experiences addressed the importance of their colleagues as well as their own successes and frustrations (Table 7). Nine teachers told of collegial influence; they give each other "confide ce" (Chelsea) and serve as "critical friends" (Aubrey). Successes happen; nine teachers related "priceless" moments (Denny). Frustrations happen at Highland just as they do in any classroom; eight teachers gave examples.

How Does Teaching with an All-School Storyline Affect the School Community?

Interactions with colleagues and students formed most of the comments that teachers made on their perceptions of the effects of an all-school Storyline (Table 8). As with the teachers, the principal did not answer all of the questions in the interview in ways that could be included in other tables. His remarks are included only here and in Table 1, where he gave his background information.

Tab. 8: Teachers' perceptions of the effects of an all-school Storyline

Type of response	Frequency of response (n=13)	Representative responses
Impact on collegiality	10	There's a lot of lunchtime chatter (amongst faculty). When we're all in this and it's a common thing, we really talk about it: "What did you do?" (Abby)
		Everybody pulls it together and I think it really helps just with staff c hesiveness because you're all trying to work towards the same end. . . . All of us benefit from the work of others. (Avery)
		We've been working on this (all-school Storyline) for a year already. So we're defin tely invested in it, and we defin tely rely on each other, . . . trusting each other. (Cheryl)
		A school-wide Storyline helps with staff c hesiveness. We all have the same context. (Bridget)

Type of response	Frequency of response (n=13)	Representative responses
		(The principal) made time for us to do a "frieze walk." . . . to see the work that everyone has done. (Avery)
		My role is very different from where I was before. I need to protect time for Storyline and time for planning. We've used (district meeting time) just for Storyline that other schools use for other things . . . (so that the teachers can) organise an all-school Storyline. (principal James)
		Storyline is extremely benefic al. It is a key to the success of our school, and it is a really good unifying focus. The whole team believes that this is a valuable and powerful use of our time. (principal James)
Impact on students	10	Some of the so very confide t older students totally changed their ideas after hearing the reasoning of some of the younger students. (Denny)
		The kinds of questions that they (the older students) were asking of their hosts (the younger students) in this room. . . . They were thinking of that question because they knew the answer in their own park. So it was helping them to better understand and better think about our park and naturally compare the two. They were like, "Oh, the Rockefeller family, they did this in our park. I didn't know they did things in other parks." (Lucy)
		When students (in all grades) share a common purpose and goal, their interactions are more meaningful and they are more connected, even afterwards. (Aubrey)
		All the way up through fi h grade we have children who are willing to be children and who are not in a rush to grow up. Storyline is a built-in time to make believe that allows kids to be kids. A lot of project-based learning is kids acting as grown-ups. Storyline is kids pretending, allowing the kids to be kids, enjoying who they are. (principal James)
Importance of adhering to the group calendar	4	Staying caught up on the school-wide Storyline schedule means setting aside regular lessons. (Avery)
		You've got to be on that same page. (Cindy)

Table 8: Teachers' perceptions of the effects of an all-school Storyline.

Ten interviewees noted how an all-school Storyline affected collegiality (Table 8). Cheryl said, "we're defin tely invested in it, … trusting each other." Ten said there was an impact on students, such as older students changing their ideas after listening to

the younger students (Denny). Lucy heard children comparing the Rockefeller family's influence in different parks. The principal noted that he had to adjust his role to provide opportunities for the teachers to plan.

We asked teachers and the principal the question, "What do you like most about Storyline?" They cited multiple features with no one characteristic distinguished from any other. These comments have been included in their responses to other questions.

What do parents and former students think of Storyline?

Families had the interview guide (Appendix A) during the interviews. Interviewees focused on sharing their experiences rather than answering the questions directly. None of the family interviewees separated what they liked most about Storyline from their other comments.

Parents were inspired to enrol their students at Highland primarily due to the philosophy of Storyline and recommendations from others (Table 9).

Tab. 9: Parents' perception of what inspired them to enrol their children in a Storyline school

Type of response	Frequency of response (n=7)	Representative responses
The philosophy appealed to me for my child	7	There's the potential for a lot of possibilities in the characters, just social-emotional learning and problem-solving with taking on a persona and having opportunity to play out some things with that character. (Kathy)
		You can sit at your desk all day long and be fed information, but it's when you become what you're studying, when you encircle your environment with what you're studying, and then you do it, . . . there's going to be deeper learning. (Paula)
		Integration (of subject areas) and relevancy is critical in kids' ability to understand and learn and make sense of the world. (Kathy)
Recommendations from others	3	Seeing the experience that my neighbours had (with Storyline). (Millie)
		(My oldest daughter) visited Highland. And she said, "If I had a kid, this is the school that I would go to." (Tamara)
Teachers appear excited and happy	2	I feel a very positive, warm, small-town feel that the teachers are genuinely excited and happy. (Olivia)
High academics	2	It's probably, if not, the most challenging academic school in the town. (Paula)

Type of response	Frequency of response (n=7)	Representative responses
		Every day when I'd go and sign in to help (as a volunteer before my children were enrolled at Highland), I would just be amazed at what I saw in the school. (Tamara)

Table 9: Parents' perceptions of what inspired them to enrol their children in a Storyline school.

All the parents said the reason for enrolling their child(ren) at the school was an alignment of the Storyline philosophy of education with their own (Table 9). Th ee mentioned the recommendations from others as influential in their decisions.

We asked how Storyline affected the students (Table 10). The students mentioned it being a favourite time of day and that it their engagement and attitude toward school.

Tab. 10: Family perceptions of how Storyline teaching affected the students in the family

Type of response	Frequency of response (n=7)	Representative responses
Positive attitude toward school	7	They did great in that environment and loved it and thrived even more probably than they would have done in any other. (Millie)
		I think it (Storyline) played an important role with my kids enjoying learning and doing as well as they do. (Millie)
		My kids never wanted to miss school because they didn't want to miss Storyline, just to see what was going to happen that day. (Millie)
Highly engaged in learning	7	The kids want to keep learning; they're immersed in the story; I see passion and excitement in my kids. (Victoria)
		You feel like the kids get so much more out of it and are so much more involved in the learning. (Millie)
		My favourite Storyline was the San Francisco all-school (Storyline). I was part of the Mission District, and we were a pastry business. We went through sanitation school, we learned all the business requirements, there was fog (dry ice), and there was an earthquake. It was just like a new adventure. We walked around like, "What's going to happen today?" It was really clever and creative. (Gracie)
		I was never thinking, like, "Aww, we're doing math." It was like, "Oh, here's another thing in Storyline, my favourite part of the day." (Gracie)

Table 10: Family perceptions of how Storyline affected the students in the family.

All of the parents and children agreed that the children had a positive attitude toward school, wanting to be there and wanting to take part (Table 10). All also remarked on being highly engaged, shown in Gracie's comment, "It was just like a new adventure."

Families gave two related types of answers to the question of how Storyline influenced their family's interactions (Table 11):the influence showed in conversations and vacations.

Tab. 11: Family perceptions of how Storyline influenced family interactions

Type of response	**Frequency of response (n=7)**	**Representative responses**
Family conversations and activities are related to Storyline	7	They come home and tell me about it, all excited. It's like when a new movie comes out. (Paula)
		(Storyline) made our family more involved in their education, versus, "Oh, what are your math problems?" . . . I was excited. My husband was as excited as they were. "Oh, what happened?" (Millie)
		Every dinner table conversation was, "And guess what? Grandma died today." And I'm like, "What?" "No, on the Oregon Trail. You know, Grandma passed." (Olivia)
		You bring Storyline everywhere you go. (Tamara)
		(Due to the Top Chef Storyline), he feels more comfortable (cooking), and it motivated us. . . . It just opened up his world and our world. (Millie
Inspired vacation travel to site of Storyline topic	7	(After the San Francisco all-school), there was a whole bunch of us who ended up in San Francisco. (Kathy)
		We try to, when we can, incorporate the Storyline into our trips and vacations. . . . We did the (all-school Winter) Olympic Storyline a couple of years ago. . . . Whistler (the site of the Vancouver Winter Olympics) is only ten hours away and we ski, and so it was just like, "Let's go to Whistler this year." (Paula)

Table 11: Family perceptions of how Storyline influenced family interactions.

For the families interviewed, Storyline became a topic of conversation during family times (Table 11).All of these families were so intrigued by the Storyline that they spent their vacations traveling to Storyline locations.

The families were convinced that Storyline was an effective teaching method (Table 12). Evidence cited included long-term recall and applying Storyline in a variety of contexts.

Tab. 12: Family perceptions of evidence which shows that learning with Storyline is effective

Type of response	Frequency of response (n=7)	Representative responses
Ability to recall facts or events	7	My kids will remember things, and it'll go back to something that happened in Storyline, something I sure wouldn't remember from a history class. (Millie)
		That jars their memory, having a character. (Millie)
		We went to the culmination today and I could compare their frieze to the one I did when I was that age, because I remembered it so well. (Tera)
		It made it a lot easier to remember (than learning now in middle school). (Gracie)
		It was so exciting that we still get excited talking about it. (Victoria)
Learning from Storyline used in context away from school	7	They apply it wherever they go. . . . We were at a dump for metal recycling, this huge dump. And they saw this big, big screw. And one of them blurted out, "Look! It looks like Archimedes' screw pump, right?" Or we'll be at the Getty Museum in LA and they'll come across a Monet or a Degas, and they'll know it because they drew it. (Paula)
Student achievement	2	My son did an art Storyline. . . . He's not a creative kid. He's math/science. . . . He loved that Storyline. To see him – he was the one that never thought he was good at art or anything like that – creating these amazing things. (Millie)
		He did amazing and did things I would never expect of him. (Millie)
Learning social skills	2	I was like, "That must be how they feel." And I feel like that was when I really realized – I got to feel how they did for a little bit. (Tera)
		I always made someone that I wanted to be; it was kind of like a dream person. (Gracie)
		One time I was completely different than myself. . . . I liked it. It kind of gave you, like, the other side of things. (Tera)
		I was Clan Mother of the Turtle Clan and I had some hard people that were causing trouble in other clans, and I had to try to control them. I'm trying to be a leader with a bunch of boys that did not cooperate in second grade. . . . As hard as it was, . . . it really helped you become a leader and realize that you're going to have to deal with this for as long as you live, pretty much. So it kind of taught you life lessons along with it (the academics). (Tera)

Table 12: Family perceptions of evidence which shows that learning with Storyline is effective.

Parents noted that even after the children graduated, they talked about Storylines (Table 12). The former students remembered specific details about the Storyline, such as when the frieze looked like. Storyline served as a context for applying the learning in out-of-school situations.

Discussion

We found three themes in the data: Storyline affects the connectedness of the school community, student and teacher motivation, and teachers' lives. A fourth theme was pivotal for the teachers' work: support from the school principal.

The all-school Storyline enhanced the Highland community connections. Teachers relied on each other and trusted each other; they planned together for a year beforehand. Students interacted with and learned from each other in ways that they would not have otherwise; older students learned from the younger and through those interactions made even more connections in their learning. Families and former students attended the culminating event.

Participants noted that Storyline affected student and teacher motivation. The teachers referred to both themselves and their students as experiencing challenge, curiosity, control, and fantasy, the important contributors to motivation (Malone & Lepper, 1987). These grew from the opportunities the teachers gave to their students to make sense of the world through story. When teachers nurture the student ownership of that story, they allow learners to both become more engaged in their learning and to put that learning into a meaningful context which then can lead to better retention of learning. Former students attributed their long recall of academics specifi ally to The Storyline Approach; they recalled the fantasy and spoke of the challenges, their curiosity, and the choices they made. Families recalled how the Storylines influenced the family conversations and trips; the high socio-economic status of most families at this school may have influenced their ability to follow up.

Storyline influenced the teachers' lives in ways that may happen in other schools which have a strong common focus. The teachers referred to the collegiality of their teaching staff due to having the common context of using Storyline. The teachers mentioned working closely with teams. They give each other confide ce and serve as "critical friends," reminding each other of important aspects of teaching with Storyline. The teachers told us of their struggles, successes, and frustrations, which are common to teachers: time, managing new requirements, and having plans that don't work out as expected; they resolved unexpected events and recognised "payoff " of student joy or achievement.

The principal's leadership was key to the daily operation of this school and to the all-school Storyline. He encouraged the staff himself and created opportunities for them to encourage each other. He found ways to create group planning time. Without his support, the school would have operated differently.

Relationship of this Study to Teacher Education and Early Career Teachers

Teachers need opportunities to develop and to fi d enjoyment in their profession; some, as those at the school in this study, fi d this through Storyline. Storyline teachers often are situated in a local network of teachers using Storyline, such as Highland in this chapter. There may be a need for teachers to develop knowledge and expertise in community as they act as Storyline designers. It may be that learning about Storyline while in teacher education classes will give early career teachers the tools they need to make their careers more vital and rewarding. As we look to train future teachers for the classroom, we need to be sure that we include alternative teaching methods such as Storyline which offer them options to enhance their own professional lives as well as provide opportunities to enhance the lives of their students.

Strengths and Limitations of the Study

Each person participated voluntarily. There was no individual incentive to participate although the research grant provided a sum to the school's Storyline fund. The content of the interviews and journals were consistent with each other over the three months of the study. We used pseudonyms to preserve anonymity.

The main strength of this study is that it was conducted within one school where all the teachers were highly experienced in teaching with Storyline. The participants had a common setting, experience, and perspective. Th s was the intended group to study for this research. The limitation is that in a school where there were fewer experienced Storyline teachers, a different population, or a different culture, some of the data might be different.

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Appendix A: Interview Prompts

Note: Not all questions were used in each interview. Not all participants answered all questions.

Teacher Interview Prompts

1. Tell me about your teaching background.
   a. Years/content specialties/grade level
   b. When in your career did you start using Storyline?
   c. About how many Storylines have you taught?
   d. Would you describe yourself as a novice, middle, or well-experienced Storyline teacher?
2. What drew you to teaching with Storyline?
   a. Why did you start using Storyline?
3. How does Storyline teaching affect you?
   a. How has using Storyline encouraged you as a teacher?

   b. How has Storyline influenced your teaching?
   c. What does Storyline do for you – yourself as a teacher – that other methods do not?
   d. What are you currently learning about teaching with Storyline?
4. Where in Storyline teaching do you tend to struggle? (planning overall/culmination/refl ction; keeping the plot alive; responding to student input …)
5. How has Storyline influenced your teaching?
   a. How has your teaching changed because of Storyline?
   b. How do you do things differently when teaching with Storyline?
   c. How has Storyline changed your teaching life?
6. How does Storyline influence the learning environment of your classroom? Feeling tone, ownership, student control, how much "say" they have, student interactions, what is rewarded, what is encouraged….
   a. How do students engage while in a Storyline versus not in a Storyline?
   b. What do students do differently while in Storyline?
   c. If we walked into your class while students are working in Storyline, what would we see that is different from a classroom that is not working in Storyline?
   d. How do you manage/get student input in the Storyline?
   e. What does Storyline do for your students that other methods do not?
7. What do you like most about using Storyline?
8. What evidence do you have that Storyline is effective?

Principal Interview Prompts

1. Tell me about your teaching and administration background
   a. Years/content specialties/grade level
   b. When in your career did you become aware of Storyline?
2. What drew you to being an administrator in a school which uses Storyline?
3. How does Storyline teaching affect the teachers you supervise? (Please do not identify any specific teachers.) Please address any particular difficulties, encouraging aspects, or discouraging aspects that you have witnessed.
   a. What does Storyline do for the teachers that other methods do not?
   b. What are you currently learning about teaching and learning with Storyline?
4. How has Storyline influenced your administrative role?
5. How does Storyline influence the learning environment of the classroom and school?
6. How do you see that Storyline influences the children under your administration?
7. What do you like most about teachers using Storyline?
8. What evidence do you have that Storyline is effective?

Parent/Family/Former Student Interview Prompts

1. What drew you to having your child in a Storyline school?

2. How did Storyline teaching affect your child/you?
   a. How has using Storyline encouraged your child?
3. How did Storyline influence you and your interactions with your child?
   a. How has Storyline influenced your parenting?
   b. What are you currently learning about your child while in a Storyline that you think might have developed differently with another teaching method?
4. What do you like most about Storyline?
5. What evidence do you have that Storyline is effective?

Appendix B: Journaling Prompts (Teachers)

Note: Not teachers answered all questions.

Journaling

As a refl ctive activity, one that will give you time to review what you have done and learned, we ask that you record your thoughts about the day's activities in an ongoing journal. Please spend approximately 15 minutes two or three times a week writing your refl ctions on the events of the class (you certainly can write every day if you wish). Thi k of your refl ctions as a brief story of some aspect of your day upon which you want to refl ct: perhaps what you did but more signifi antly what you discovered, thought, felt, or learned about your teaching and your students. Provide detail as you think through and write about your days. Consider addressing one or more of the following prompts to guide your refl ctions (or add your own ideas):

In general:
- What happened today that was interesting/unique/notable?

Daily work:
- Did things go the way you expected?
- Describe a frustration you experienced today.
- Describe a success you experienced today.
- List a question (or multiple questions) that you had about how teaching went today.
- What role did questions play in your thinking processes in your work today?

Problems and problem solving:
- How did you solve problems you encountered today?
- Describe patterns you see in things that frustrate – or challenge – your teaching.

Changes in lessons:

- Did things go as planned today? If not, what changed?
- How did today's lesson change from what you expected?
- What caused the changes to your lesson?
- What do you expect to have happen in your lessons in the next few days?
- Is the fl w of your Storyline predictable or not? Why?

Working with others:

- What attitudes towards teaching and learning did you see exemplifi d by students in class?
- Interactions: describe an interaction regarding Storyline in class today.
- Describe the interpersonal dynamics you witnessed in class today.
- How has the work of others influenced your own teaching?
- Who assisted you today and how did that person assist you?
- Who did you help today and what did you do to help that person?

New learning:

- When and how do you get your best ideas for teaching?
- Discuss the sources of information that assist your learning (consider other teachers, your students, resource materials, and just plain experimentation).
- Complete the following: I used to think _____ but now I think _____ .
- Describe a new skill that you learned in class today.

Chapter 7

Storyline: Why? What? How?
The Storyline Approach in Teacher Education (TEFL)[1]

Doris Kocher

Abstract. University students often complain that they learn a lot of theory but not how to apply their theoretical knowledge in educational contexts, e.g., in "real" language classrooms. As a consequence, they would rather stick to outdated methods and feel unhappy. In my research I searched for sustainable solutions and designed a specific course concept to overcome this discrepancy. The theory behind my research and course concept is closely linked to the theory and research on motivation, constructivist approaches, task-based language learning, learner autonomy, action-based learning and multiple intelligences. Th s chapter is based on the fi dings of three action research case studies which contain observations, questionnaires, written refl ctions and Storyline projects designed by the student teachers. In order to examine, analyse and interpret the various perspectives and data, I decided on mixed methods research with a focus on qualitative research (qualitative content analysis) and triangulation. The course was considered as highly relevant, motivating and effective. The data revealed that the course concept provided a multifaceted picture of the Storyline Approach because theory, praxis, refl ction and transfer were closely related.

Keywords: TEFL – Storyline in secondary school – Storyline at university – sustainable teaching and learning

Introduction

Our young generation is confronted with many new challenges in a globalised, media-based and fast-turning world where intercultural communicative competences and English as lingua franca seem to become more and more important. Teaching at school thus means preparing learners to master complex situations where they need to apply profound knowledge, various competences and appropriate attitudes to become successful, critical and life-long learners. But how can (language) learners and teachers cope with these multifaceted demands effectively?

University students often complain that they learn a lot of theory but not how to apply their knowledge in educational contexts. My experience from various courses in the fi ld of foreign language teaching confi ms the fact that many students are able to recite and explain subject-related terms and concepts such as *task-based language learning*, *interdisciplinary learning* or *learner-centredness* but still do not know how to design lessons or tasks according to these principles. When I point out this problem,

1 TEFL = Teaching English as a Foreign Language.

they frequently mention that lecturers tend to give impressive presentations but often do not serve as role models when it comes to new practical experiences because their frontal teaching is (apart from the PowerPoint presentations) more or less the same as in the past, namely teacher-centred. One of my students frankly outlined her concerns: "Focusing on the learner is the new way to teach in high-school, and it is mentioned in every other article and book I read. But how am I supposed to teach like that when I have never experienced what it really means?" (SA3St7)[2]. As a consequence, student teachers would rather stick to "safe" methods and teacher-centred procedures to avoid disruption and unpredictable situations, even if they are highly motivated and eager to try out something new.

Obviously, there has to be a change in teacher education to help young teachers overcome the shortcomings of their own school experiences and develop from the sage on the stage to the guide on the side. My research with various English classes (10-17-year-old learners) and with student teachers in university courses has proved that the Storyline Approach (TSA) is a very suitable tool to support this change (cf. Fehse & Kocher, 1998a; 2000; 2002; Kocher, 1999; 2006; 2007; 2008; 2016; 2019). This chapter is based on the findings of three action research case studies which were carried out between 2006 and 2011 (cf. Kocher, 2019) as well as on my ongoing research into Storyline in teacher education (TEFL).

Context and Background of My Research

Over the last decades, various methods and approaches have been developed to make school-based language learning more motivating, meaningful, authentic, communicative, learner-centred, autonomous, holistic, cooperative, efficient and sustainable. In addition, an enormous number of publications on motivational processes (e.g. Al-Hoorie & MacIntyre, 2020; Gardner, 2010; Dörnyei & Ushioda, 2011; Hadfield & Dörnyei, 2013; Küppers & Quetz, 2006; Nakata, 2006), constructivist approaches (e.g., Meixner, 2005; Timm, 2013; Wendt, 2000; Williams & Burden, 1997; Wolff, 1994; 2000; 2002) or task-based language learning and teaching (e.g. Eckerth & Siekmann, 2008; Ellis, 2003; Nunan, 2004; 2013; Van den Branden, 2006; Van den Branden et al., 2009; Willis, 1996; Willis & Willis, 2007) offer suggestions, reasons and strategies to reach the above-mentioned goals.[3] On the other hand, it seems like theory and research findings are not realised and transferred to language classrooms – for many reasons: "However, reports of the implementation of different task-based initiatives (…) suggest considerably more unease among practitioners working with tasks 'on the ground' than is generally acknowledged in the literature" (Samuda & Bygate, 2008, p. 195). Nunan (2013, p. 25) points out, "(d)espite all of this activity, the concept is still widely misunderstood, and is only slowly beginning to gain traction in the classroom". Among others, also East (2012) and Van den Branden (2006) criticise the discrepancy between theory and classroom

2 Coded source (written reflection, case study 3, student 7).

3 For further details see Kocher, 2006; 2007; 2008; 2016; 2019.

practice. Why is there a gap between theory, research and classroom practice (Königs, 2013, pp. 18)? How can this gap be overcome?

Aims and Research Questions

While implementing TSA in various TEFL classes to study motivational aspects and learning outcomes, I experienced that the learners of all age groups in secondary school enjoyed the projects and put a lot of effort into their work (cf. Fehse & Kocher, 1998a; 2000; 2002; Kocher, 2019). However, I also noticed how difficult it was for teachers to move away from teaching traditions and outdated beliefs, even though I explained every step in detail and prepared all the material for the Storyline projects. Obviously, it was not sufficient to (only) explain what Storyline is and how it works to cause a change in teacher behaviour regarding more learner autonomy. The statement that "(t)eachers tend to teach the way they are taught – and not the way they are taught to teach" (Gaderer, 1984, p. 171), has been quoted many times, as it clearly illustrates how vigorously our brain prefers to stick to routines and thus tends to avoid risks and changes of behaviour. Teachers who do not feel confident in the classroom are – for obvious reasons – not open towards new approaches with unpredictable outcomes but rather "continue to teach as they have been taught" (Nunan, 2013, p. 17).

As a result of my classroom observations, I asked myself how to design a Storyline course that integrates subject-related knowledge (*know how*) as well as procedural knowledge (*do how*) to make university students proficient and confident to use TSA in their internship and to also cope successfully with heterogeneous classes. How can they develop from traditional *explainers* to reflective and competent *enablers* (cf. Scrivener, 2011, pp. 17–23)?

In order to answer this question I finally set up a specific course concept. My aim was to *teach* TSA to my university students to initiate a change in their teaching behaviour and at the same time *use* TSA as a tool to reach this goal. This means, I taught Storyline through Storyline to convince my students of the numerous qualities of the approach. At the same time I wanted to find out if my course concept was motivating as well as learner- and learning-centred with regard to my target group.

Research Methods

Quantitative research methods are usually based on prior results that are again tested in closed questions. If there are neither former studies nor clear anticipated results, as was the case with my research, it makes sense to use other methods. Qualitative research methods do not have a very long tradition in the field of language learning and applied linguistics but obviously they are becoming more and more popular because of "the growing recognition that almost every aspect of language acquisition and use is determined or significantly shaped by social, cultural, and situational factors, and qualitative research is ideal for providing insights into such contextual conditions and influences" (Dörnyei, 2007, p. 36).

In order to examine, analyse and interpret the various perspectives and complex areas of language learning, it makes sense to choose mixed methods, and thus combine qualitative and quantitative methods (triangulation) to achieve more profound and reliable results. Flick (2008, p. 288) suggests flex bility with regard to data collection, and also Dörnyei highly recommends to "*adopt a pragmatic approach and feel free to choose the research method that you think will work best in your inquiry*" (2007, p. 307, italics in original).

In the case studies referred to in this paper I decided on mixed methods research with a strong focus on qualitative research: I was not only the *practitioner* who taught the courses but also the *researcher* who observed the classes, took notes (research diary) and photos of the frieze, collages etc., initiated class discussions and interviewed course participants. Furthermore, I refl cted on my observations and experiences regularly (introspection) and documented my thoughts in the research diary.

For their term paper, the students of my courses had to design Storyline projects in small groups and also write an individual refl ction on their learning processes. Additionally, on the last course day they were asked to complete a semi-structured questionnaire without giving their names, so they could also list negative aspects without being identifi d or blamed. Th s is of course a crucial aspect which called for a critical refl ction on my roles as a researcher and a practitioner (cf. Flick, 2012, pp. 143).

Outline of My Storyline Course

The participants of the examined Storyline courses were either primary or secondary student teachers with different backgrounds (e.g., age, learner biography, teaching experience, language proficie cy, social competences etc.). For the simulation I chose two different Storylines that are appropriate for inexperienced teachers: either *Our Farms* (Kocher, 2001; 2002) or *Witches* (Fehse & Kocher, 1998b). The course was (and still is) designed as a compact course (4 days) with a strong focus on learning by doing and critical refl ction (cf. Dewey, 1936). Right from the beginning, it was clear to me that I did not want to be the traditional "explainer" but rather model the role of the Storyline-specific "enabler" (cf. Bruner, 1966; 1996; Scrivener, 2011).In the following I will summarise and explain my course concept which is based on three major phases: theory – praxis – transfer.

Before the course starts, the students receive a reader with articles on educational standards and curricular requirements, diversity, constructivism, project-oriented learning, autonomous learning, task-based learning, the role of textbooks in TEFL etc., and of course a number of texts on TSA including several practical examples. They have to read the texts before the course starts, so it is their own decision how much they need to read to be well-prepared for class discussions.

As language anxiety is a well-known problem in any language learning context around the world (Gardner, 2010), the fi st day starts with a warm up activity (e.g., double circle), and the student teachers have the opportunity to chat about anything of interest in the target language. In the next step they share their own experiences with project work or theme-based work in TEFL. At the same time, they try to defi e

these terms and design a poster with their group results. After the poster presentation I show some examples of so-called projects or tasks from various English coursebooks. The students evaluate the examples according to their collected criteria, and thus show whether they can apply their knowledge.

The second day starts with a discussion of the theory and published knowledge concerning TSA. Again, the students work in groups to establish a positive class atmosphere and reduce existing language anxiety. Each group gets a different set of questions (e.g., about the roles of teachers and learners, the functions of the frieze and key questions, the similarities and differences with regard to task-based instruction), and again designs a poster. In this step they refer to the reader and also make up hypotheses about TSA. After the discussion of results, all posters are displayed on one part of the frieze to make sure that we can refer to them at any time.

Before we start with the class simulation, I ask the students whether they now feel confide t and well-prepared to carry out a Storyline in school. We then collect all their questions, fears and problems with regard to teaching TSA on a poster, and I also encourage the students to add further questions whenever they come up during the week. After lunch the experiential learning phase starts and is continued on the next day. Th s means, I carry out one of the above-mentioned Storyline projects in a class simulation which allows the student teachers to experience and "feel" what it is like to be a pupil but also to observe me in the role of the teacher. In the afternoon of the third day we discuss chances and challenges of Storyline in TEFL. To make clear that TSA is not a recipe but a very flex ble approach which needs to be adapted to one's specific class context, I present photos, materials and learner products from other Storyline topics, and we also watch a video example from a Storyline classroom. In addition, I present some of my own and other research fi dings to further illustrate the teachers' and the learners' view.

Now that they have not only read about TSA but also experienced it for several hours, the student teachers look at the previously designed posters with "educated eyes" (Vos, 1991, p. 93). They might revise or confi m their hypotheses but maybe also add new questions to the specific poster of questions. In the next phase some course members examine the curriculum to fi d out which skills and competences have been trained and "covered" in our Storyline simulation, while others think of how to assess and evaluate the various learning products and processes. If time allows, we briefly discuss the concept of multiple intelligences (Gardner, 2002; 2007) and its benefits for language learning before we fin sh day three.

The last day starts with the already mentioned questionnaire to fi d out what the students think about the course (e.g., likes, dislikes, course preparation, learning outcome, suggestions for improvement, comparison with other courses etc.). Th s early course evaluation allows me to go through the questionnaires during the day and give feedback before the course fin shes. Before the groups design their own Storyline projects, I display various Storyline books on a table and also give some hints to facilitate their work (e.g., suggestions for beginnings, incidents and endings). Then the students work autonomously wherever and however they want. I am available if they struggle with problems (cf. Kocher, 1994), but I do not teach actively. In the afternoon each

group briefly presents a rough sketch of their Storyline project while the others listen carefully and give feedback. If possible, I also invite former students who have carried out a Storyline in school to share their experiences. In the evening we discuss the results from the questionnaires, then go through the poster(s) with the listed questions and make sure that all questions are answered.

Data Analysis and Interpretation

The raw material in qualitative studies often appears "'messy' if not chaotic" (Dörnyei, 2007, p. 244), therefore the researcher is challenged to fi d an appropriate procedure that leads to useful and transparent results. Usually the data in qualitative studies are transformed into a textual form, which means that the analysis of qualitative data is typically language-based (ibid., 2007, p. 243). For this reason, I transcribed interviews, described frieze products, summarised observations etc. and fi ally decided on the method of qualitative content analysis.[4]

In qualitative content analysis researchers either *construct* or *apply* a system of so-called categories (Mayring, 2015, p. 29). As I could not refer to any earlier studies, and also because I was not sure what to expect in my case studies, all qualitative categories had to be derived inductively from the data (cf. Mayring, 2013). Th s means that the data from the various sources were coded, that is, aspects that referred to my research questions were marked and then tested in follow-up studies. In the end I had a catalogue with different codes that were split up into relevant categories (e.g., *learning atmosphere, language competences, social learning, holistic learning, tasks and activities, course concept* etc.). Thus, the interpretation of the data and the drawing of conclusions were both transparent and criteria-based (cf. Steinke, 2013). In my opinion, the triangulation of data, methods and perspectives was an effective strategy that lead to a "thick description" (Denzin, 1989, pp. 157), a "thick interpretation" (ibid., 1989, p. 159) and fi ally to fairly valid and reliable results of my case studies.[5]

Results

All in all, the Storyline course examined in the three case studies as well as in my ongoing research was considered as highly relevant, motivating, learner-centred and effective. Quite a number of students agreed that "this seminar has been the best and most inspiring for me as a future language teacher" (SA3St8). One student wrote that "(t)he class about storyline which I participated in during the semester break was one of the few English classes at the University of Education that actually helped me in planning lessons in school" (SA1St11).

4 For further details on qualitative content analysis see Dörnyei, 2007 or Mayring, 2015.

5 All names etc. were coded (e.g., SA3St.7; see above). As the students' refl ctions were handed in together with their Storyline projects, I decided to have questionnaires as well which were filled in anonymously. Th s means the students were free to say whatever they wanted to say (cf. Kocher, 2019). Th s is why triangulation is so important.

The data revealed that the course concept provided a multifaceted picture of TSA because theory, praxis, refl ction and transfer were closely related. Therefore, the students were not only able to acquire procedural knowledge and action-based competences to professionally design and confide tly implement Storyline projects in school, but they also gained valuable insights and profound theoretical knowledge to give reasons why Storyline is not only motivating but also an effici t approach in TEFL. There is clear evidence that the tight combination of *know how* and *do how* convinced the students of the qualities of TSA and besides motivated them to try out Storyline projects in their internships and future schools:

> Apart from having gotten to know how the storyline approach works, I think this was the most benefic al point for me: experience language learning the way we are nowadays supposed to teach it. Beforehand, I just heard about the new way of teaching but could observe myself falling back into the structures of teaching I experienced as a pupil myself, even though I knew better in the theory (SA2St15).

Even though each single phase was considered as valuable and stimulating, it was noticeable that especially the class simulation contributed to a high learning outcome. Almost everybody mentioned in the written refl ctions (at least 84%),[6] in the class discussions and in the questionnaires that this was the best and most enlightening part of the course, and that "(i)t is very helpful to be taught with the same principles which we are supposed to use at school" (SA2St6).

Reading subject-related texts ahead of time was seen as a positive strategy to have more time for discussions, questions, refl ction and (of course) the simulation. Most interestingly, the anonymous questionnaire revealed that many students had read most of the texts or even the *complete* reader before the course started, although I had told them to choose the texts and topics according to their individual needs and pre-knowledge. On the other hand, almost everybody agreed in the class discussions that just reading or maybe listening to a lecture was defin tely not enough to get a clear picture of this new approach. The questions on the posters mirrored many fears of critical parents, colleagues or head teachers but also doubts and insecurities with regard to losing control, means of assessment, forms of correction, curricular requirements, disruption etc. The importance of positive role models in teacher education was explicitly highlighted in multiple students' refl ctions:

> I personally liked the idea that the tutor was the 'teacher' and the students stuck to the 'pupil' role. Thus students were able to observe excellent teaching and consequently learned a lot. In other seminars students sometimes have to teach according to an approach about which they have read, but not experienced themselves. Th s often results in rather poor performances due to a lack of students' experiences. Since Mrs Kocher

6 In qualitative studies it is difficult to provide concrete and absolute numbers. The figu es above only refer to what the university students mentioned explicitly in their refl ctions. Th s means that more students might have mentioned a specific aspect if this had been asked for explicitly in a questionnaire or in a structured interview.

> is an expert in teaching Storylines, (…) I am sure everybody will benefit from this experience (SA1St18).

Observing a role model (e.g., me and the teacher in the video), looking at authentic learner products and evaluation sheets from various school classes, but also consulting the curriculum and discussing means of assessment defin tely caused a reduction of these fears and thus initiated changes of attitudes and new insights:

> As a teacher you have to justify your work towards yourself, the students, the parents, the Ministry of Education and other interested people. It is amazing how *Storyline* meets the standards in the curriculum. The *Storyline* 'Witches' covered most of them. (…) In contrast to linear teaching *Storyline* combines most of the required students' competences in a few hours. As a consequence, it is no problem to legitimate *Storyline* (SA2St5).

Buzz words such as *affective filter*, *meaningful tasks, purposeful communication, fluency before accuracy*, *entrepreneurship* or *learner- and learning-centredness* changed from abstract terms to something the students could relate to because of the experiences they made and the discussions we had:

> I think whoever wrote that you should make this course compulsory, was totally right. In this course we learned how to put an approach actually into practice, whereas in most of the other courses the theories predominate. I really enjoyed and benefited from the course since the experiential learning was so impressive that I will not forget this approach as easily as all the other ones I only know theoretically (SA2St15).

As a result, the students were satisfi d and proud, because "(a)t the end of the seminar we were able to answer these questions by ourselves. It was not somebody telling us the answers to all the questions that occurred. It were the students themselves to answer the questions. Th s showed the learning outcome of the seminar and I was surprised about our improvement" (SA3St15).

Although we all know that designing your fi st Storyline is hard work (Kocher, 1994), many students mentioned in their course refl ctions that this was an integral part to make them feel more secure and competent. In their teams they could discuss upcoming questions or consult me if necessary. Apart from the workload, it was apparently also very motivating for the students to design their own Storylines and present their fi st ideas in class to receive a feedback from their peers:

> After experiencing a storyline, designing a storyline was the ideal step to get the whole view of every important aspect which has to be taken into consideration when planning a storyline. Problems which were not obvious until now got room to be discussed and solved. Designing a storyline supported the own learning process extremely (SA3St1).

What I found interesting and very positive was (and still is) the fact that the groups appreciated the visits of former student teachers, even though not everything went well when they tried out TSA in school:

> I particularly liked the visit of the two students who had already carried out a storyline project themselves. It was very interesting to fi d out what they experienced during the project and what difficulties they had to deal with. Even *though* Ms Kocher had already told us a lot about her own experiences, the conversation with the students was particularly stimulating, as it opened up a different perspective (SA4St10).

In his speeches and publications, Steve Bell has often mentioned *mutual respect* (Bell, 2001) and *structured freedom* (Bell, 2007) as two essential criteria of TSA, and this is exactly what a number of students found very benefic al, because "(t)hese are also reasons why one, as a teacher, has no need to be afraid of doing a 'Storyline' in class as theme and level of guidance can be chosen and adapted" (SA3St18).

After the course the students had three months to fin sh their Storylines in the semester break. The positive feedback in their course refl ctions proved that motivation, interest and conviction did not diminish over time as one might expect. On the contrary, many students mentioned that they were looking forward to trying out their fi st Storyline in school because "I feel that we had a complete introduction to the method of storyline. Now it is on us, to introduce the method to our students and use the benefits of the approach" (SA3St15). Some students actually contacted schools and asked for permission to carry out a research project and try out their Storylines. Th s, of course, is a great idea to complete the learning process and consolidate what students learn at university. In addition, school teachers might become inspired by their ideas and engagement, while the young student teachers profit from their mentors' long experience. In my opinion, everybody would gain from a joint venture like this.

Unfortunately, not all of the students found teachers who were willing to try out something new, and "in contrast to fi ding a school, writing the storyline was rather easy" (SA2St18). Ths rather negative attitude caused some frustration:

> During my (…) [internship] I mentioned that I would like to do a Storyline in one of my classes but there was no time. And I think that this could be a problem in school because it won't be easy to get all the lessons you need to do a good Storyline. In my opinion most of the teachers don't want to spend the time you need to prepare a Storyline. You have to think of different activities and create a story which has a clear structure and you need to be able to give some freedom to the pupils that they can be creative (SA3St10).

But luckily, quite a number of students gained very positive experiences in school, and they were highly motivated to report back to me:

> Instead of just using the coursebook which I was told to do, I used the *storyline approach*. Right from the beginning, the students were active and curious about this new way of learning. I was really wowed by the enthusiasm of the children and it was great to see that they were motivated and engaged with the whole story even though it was really short. My colleagues commented how much they had heard the students speak about 'Rebecca's Birthday Party' during their lessons which made me proud and realize what learning a language is really about (SA3St8).

Even those who did not get an immediate chance to try out TSA in school confi med that the course had a strong impact on their future professional career. One student confessed in her refl ction:

> I am happy that I got to experience this different approach to teaching English, since I didn't do much project work when I was in high school, and my English lessons were very grammar drill and exercise based. I know that I don't want to teach my students the way I was taught but it is very hard to break with habits when you don't get to experience new ways … (SA3St7).

Another one stated: "The course's content is/was absolutely relevant and it was [one] of the rare seminars where one has the feeling at the end: yes, I am really going to be able to use that" (SA3St9).

Conclusion

TSA combines and integrates many up-to-date principles with regard to good language lessons such as task-based learning, learner- and learning-centredness, cooperative learning, content-and-language-integrated learning, media-based learning or self-dependent learning – to name just a few – even though it was developed in the 60s and 70s of the last century. Storyline allows every child or teenager to be a successful language learner and has great potential for life-long learning (Kocher, 2019).

A course on TSA can be connected to many relevant topics in teacher education: pedagogy, psychology, didactics, lesson-planning, assessment, differentiation, inclusion, role of textbooks, disruption etc., and it is important to teach and discuss all these issues not in bits and pieces but – with regard to sustainable learning – in a situated learning context. If student teachers experience the power of this approach and learn to design their own projects, they implicitly learn a lot about theory because they have to give convincing reasons for their decisions which again prepares them for their future profession. Th s point has been explicitly confi med by many of my students over the years.

There is no empirical evidence (yet) where, how and how often TSA is implemented in TEFL, but based on the fi dings of my longitudinal research on Storyline in teacher education I am optimistic that the idea is spreading slowly but surely because more and more young teachers are "convinced that storyline is an approach that should be taught more often at universities and should be used regularly in school. I think not only the students' marks will improve but also their motivation will increase. During a storyline, students will be more willing to learn than during a text book based lesson" (SA4St12). One student even demanded to "(m)ake this course compulsory!!!! In order to have more students experience Storyline" (SAB2St1).

We still need more published research on Storyline in TEFL as well as in the fi ld of teacher education at university, but my fi dings showed how important it is to teach what you preach (Van den Branden, 2006) and to practice what you preach (Barr & Frame, 2006, p. 57). We all know, "(b)eing a teacher is not easy, especially in the area

of foreign language teaching but it can be creative, enjoyable and rewarding if teachers feel that they have a creative part to play as designers of education" (Bell, 2006, p. 59). My research proved that teacher education at university defin tely matters (Johnson & Golombek, 2016, p. xii).

TSA will of course not solve any and every school problem but it can certainly serve as a helpful tool in educational reform measures: "The fact that the concept of Storyline is used in so many different contexts surprised me a lot and gave me the feeling that it is the future" (SA3St12). There is nothing else to add.

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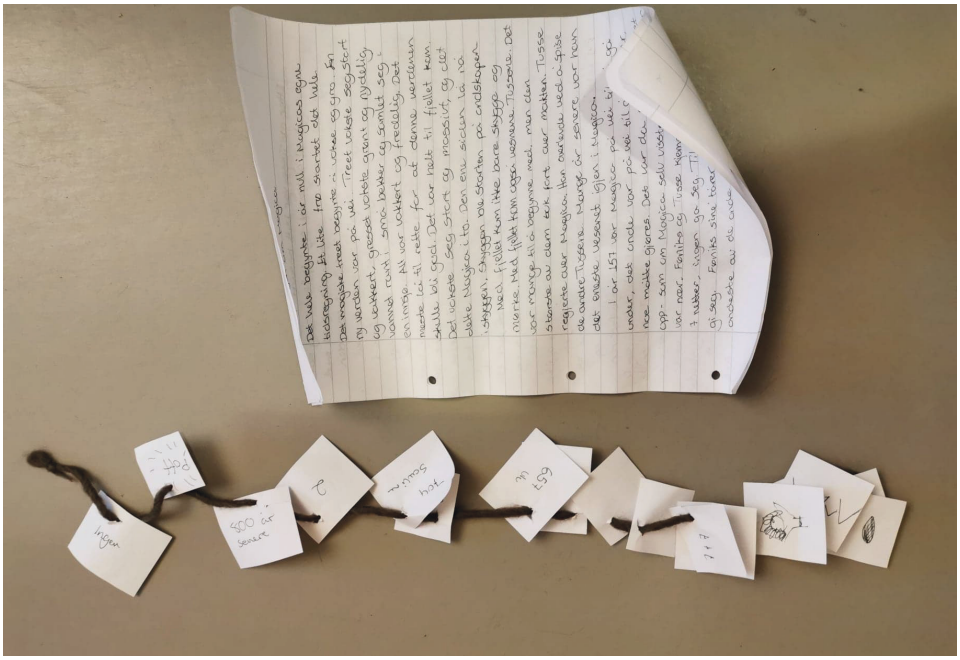

Image from the Storyline *Where good and evil forces fight for power* showing a student-made story that conveys the creation of their universe. Credits Kristine Høeg Karlsen.

Chapter 8

The Fairy-Tale Forest: Developing Pedagogical Content Knowledge for teaching Primary School Mathematics in The Scottish Storyline Approach.

Kristine Høeg Karlsen, Stein Arnold Berggren, Ali Reza Ludvigsen and Ragnhild Louise Næsje

Abstract: Th s study focuses on the development of mathematical pedagogical content knowledge when implementing Storyline as a narrative approach to organising cross-curricular learning for student teachers to become teachers in mathematics for grades 1–7. In Storyline, teachers according to Omand (2014) carefully plan "a 'line' of episodes, each of which has carefully designed key questions that encourage and support the learner to contextualise and create the 'story', promoting exciting learning" (p. 3). The study uses six semi-structured focus group interviews with a total of 24 fi st year student teachers. A qualitative analysis, based on the framework of Creswell and Creswell (2018), structures the process of coding. The results contribute to pedagogical content knowledge (cf. Ball, Thames & Phelps, 2008) for teaching primary school mathematics in the following three domains: i) Playing out the Fairy-tale story; ii) Preparing, exploring and performing the tasks; and iii) Learning through a Meta-Storyline. The results show that the students encountered a completely new way of learning mathematics when using Storyline. In summary, although the student teachers report awkwardness when joining the fi tional in-role activities, they see the potential for facilitating playful and explorative learning experiences for pupils in primary school.

Keywords: Pedagogical Content Knowledge; mathematics; learning; student perspective

Storyline and Pedagogical Content Knowledge

Storyline is a flex ble and cross-disciplinary approach to learning where students engage in real-world challenges (Ahlquist, 2015, p. 42, 47). Storyline thus provides for a good framework according to Fauskanger (2002), where mathematics occupies a central position in the learning process (p. 308). Moreover, through Storyline the students can learn mathematics in entirely novel ways. But, to be able to carry out the work of teaching mathematics in a meaningful way that supports pupils learning, teachers must have developed specific pedagogical content knowledge, in addition to common and specialised subject matter knowledge (Fauskanger, Mosvold, & Bjuland, 2010). Theorists in the fi ld of mathematics have defi ed this knowledge in several ways (Fauskanger et al., 2010, p. 35). In this chapter, we use a theoretical framework given by Ball, Thames and Phelps (2008, p. 339–402), further combined with Midtsundstad and Willbergh's (2010a) didactic perspective on Bildung.

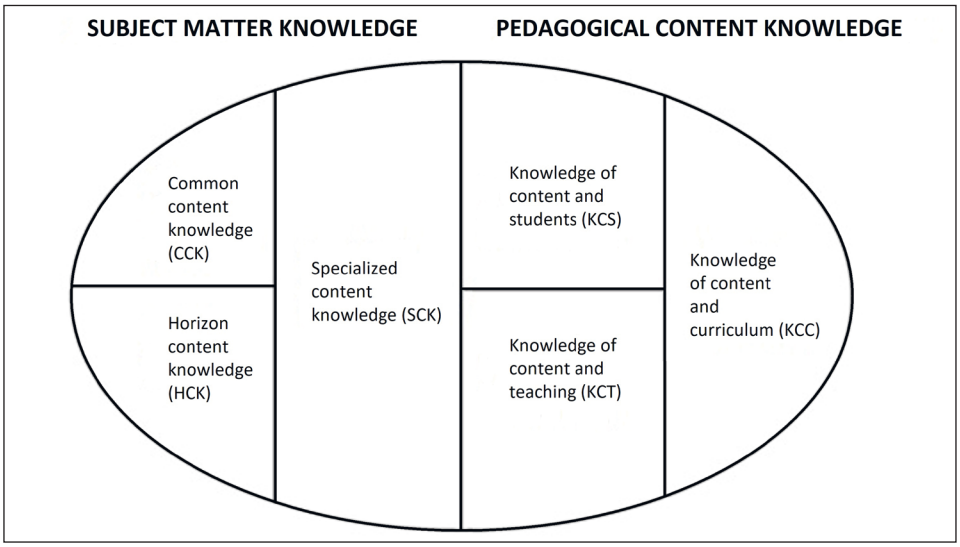

Fig. 1: Domains of *Mathematical Knowledge for Teaching* adapted from Ball et al. (2008, p. 403)

Ball et al. (2008), building on the work of Shulman (1986), have made substantial effort in developing a practice-based theory of content knowledge for teaching mathematics, divided into two main domains; subject matter knowledge and pedagogical content knowledge (see figu e 1). In this study, we focus on the development of pedagogical content knowledge when students are participating in a cross-curricular Storyline. The pedagogical content knowledge is divided into three sub domains: *knowledge of content and students* (KCS), *knowledge of content and teaching* (KCT) and *knowledge of content and curriculum* (KCC). KCS is knowledge 'that combines knowing about students and knowing about mathematics' (p. 401). Having acquired knowledge within this domain, teachers are able to predict what students will perceive to be easy and difficult, because the teacher understands how the students are thinking (Ball, et al., 2008, p. 401). Th s means that the teacher can foresee 'what students will fi d interesting and motivating' (Ball, et al., 2008, p. 401). KCT is knowledge that combines knowing about teaching and knowing about mathematics' (p. 401). Knowledge within this area acknowledges the importance of pedagogic choices and makes the teacher able to design the instruction in a way that promotes as much learning as possible for all pupils (ibid.).

To ensure that the student teachers acquire *pedagogical content knowledge* during education, the teaching and learning of mathematics within the teacher education must be adapted to the students. To correspond to the model of Ball et al. (2008), teacher educators must, according to Valenta and Enge (2015, cf. Fig. 2), have *knowledge within the field of mathematics and the student teacher* and *knowledge within mathematics and the teaching of the student teacher* (authors' translation) in order to enable student teachers to develop the necessary knowledge for teaching mathematics during education. From the didactic perspective of Bildung theory, the prerequisite for this to happen is that student teachers become *aware* of the content of the Storyline as contributing to their own pedagogical content knowledge (c.f. Midtsundstad & Willbergh, 2010b, p. 11),a process where they also discover what the content "means to *me*" (Willbergh, 2010, p. 56). Within this con-

text, in line Midtsundstad and Willbergh (2010b), the professional teacher educator must thus strive to select content that the student teachers will find meaningful. Although the main focus has been on the pedagogical content knowledge in the analysis, it can be mentioned that some comments regarding *common content knowledge* (CCK) and *specialised content knowledge* (SCK) will be made within the domain of subject matter knowledge when discussing the results. The aim of this study is to focus on the opportunities created for student teachers who will become primary school teachers for grades 1–7, to gain understanding of the pedagogical subject-specific mathematical content knowledge for teaching when participating in a Storyline. The following research question has been posed: How do student teachers preparing to teach grades 1–7 perceive the mathematical pedagogical content knowledge developed in a Storyline focusing on a fairy-tale forest?

Internationally, there has been an increased amount of research focusing on teachers' mathematical content knowledge in both the context of *primary- and lower secondary school* (cf., Depaepe et al., 2015; Krauss et al., 2008) and *teacher education* (cf., Blömeke, Suhl, & Kaiser, 2011; Niess, 2005; Valenta & Enge, 2015). However as far as we know, there is not a single study that critically examined the opportunities offered by Storyline for student teachers to develop mathematical content knowledge (also confirmed by Karlsen and Lockhart-Pedersen, 2020, systematic map presented in chapter 19 in this anthology). Having said that, there are quite a few studies within the field that focus on mathematics and Storyline in more general terms. A large portion of these studies aim to give school teachers a practical tool for teaching mathematics, such as Storylines "The Tivoli" (Fauskanger, 2003), "The Magic Trolls" (Fagernæs, 2003b) and "Danish Animals" (Christensen, Børnebyen, & Christensen, 2011). Other studies aim to contribute with more comprehensive knowledge relating to how and why The Storyline Approach can serve as a framework for cross-disciplinary teaching and learning in schools where mathematics plays a central role. Håkonsson (1997) for example, discusses the possibilities for pupils to solve mathematical problems and becoming imaginative when using fantasy as part of the Storyline (p. 133), while Fauskanger (2002) in her study, challenges and postulates whether mathematics should be within or outside the fictional activities in a Storyline. Solstad (2009), based on the Storyline "The Zoo", which first-year student teachers implemented during their teaching practice in school, aimed to examine the student teachers' experiences with using Storyline as a strategy for teaching literacy (Norwegian) and numeracy (Mathematics) in practice, and further, their attitudes towards using Storyline as future teachers. These studies and two other studies on Storyline within teacher- and adult education, which do not have a particular focus on mathematics (cf. Falkenberg, 2016; Karlsen, Lockhart-Pedersen, & Bjørnstad, 2019a; Murray, 2016) together with the theoretical framework described above, create a backdrop for this study. In the following, we will describe the Storyline implemented in teacher education, before going in depth into research design and methodology.

The Fairy-tale Forest Storyline

In this part the context of the study, *The Fairy-tale Forest,* a Storyline developed for student teachers to become teachers in mathematics for grades 1–7 will be described as it is important for understanding the data analysis, interpretation and discussion of the result.

A Storyline with Focus on Mathematics

There are various types of Storyline: book-based, historical and the here-and-now (Storhaug, 2009). Our project is a book-based Storyline, named *The Fairy-tale Forest,* because the five fairy tales; *Cinderella*, *Beauty and the Beast*, *Snow Queen, East of the Sun and West of the Moon* and *Maiden Rosewing of Santavaja Isle*[1], make up the thematic framework. The fairy-tale genre is a theme in the subject description in Norwegian for primary school students. *The Fairy-tale Forest* is also what is known as a *Meta-Storyline* (Karlsen et al., 2019a), where the Storyline is used to teach the students *about* Storyline (p. 152). The students work in groups of four or five (ten groups in total). The Storyline Approach (TSA)[2] was undertaken by five teacher educators and includes the two compulsory subjects in this programme; mathematics and Norwegian, as well as the subject of pedagogics and drama. Storyline forms the basis of four events (see the overview in Table 1). The learning approach is designed in such a way that student teachers should ultimately be able to implement an adapted approach in primary school (grades 1–4).

Three Events Organise The Fairy-tale Forest Storyline

In the first event, *The creatures,* the thematic framework is established through a fantasy journey into a Fairy-tale Forest (see Table 1, activity 1 below). The students are tasked with creating their own creatures and playing out their role, (Table 1, activity 2). The activities in line with Omand (2014), were "carefully planned to provide opportunities to introduce, learn and practise new skills" (p. 6). The activities in event 1 are driven by the following key question: What do you think the creatures in the *Fairy-tale Forest* are like in terms of their size and appearance? For more information about importance of effective questions, see chapter 14, Carol Omand, in this anthology. The design of the shape of the stick dolls were to promote an exploratory approach to different geometric shapes, lengths and sizes. The students were given guidance to make them aware of the use of mathematical terminology (*circle* instead of 'rounding'). By enabling discussions focusing on the precision of subject terminology, the aim was for students to experience how they can strengthen the oral skills of future pupils as a basic skill in mathematics (see The Norwegian Directorate for Education and Training, n.d.). Image 2 shows student work from two different groups working with *Beauty and the Beast*.

In the second event, *The map*, a messenger visits the creatures in the Fairy-tale Forest with a letter urging them to close the portals between the two universes. Evil forces in the human world will fight for power in the Fairy-tale Forest (activity 5, Table 1). The students describe to each other what they think the Fairy-tale Forest looks like using

1 These fairy tales are written by the following authors: Snow Queen (H. C. Andersen), Beauty and the beast (Jeanne-Marie Leprince de Beaumont) and Maiden Rosewing of Santavaja Isle (Regine Normann). The two fairy tales Ciderella and East of the Sun and West of the Moon is respectively collected by Brødrene Grimm and Asbjørnsen og Moe.
Translated versions of two of the fairy tales can for example be found here: http://nordlandsnatt.blogspot.com/2016/06/the-maiden-rosenwing-of-santavaja-isle.html and http://nordlandsnatt.blogspot.com/2016/06/the-maiden-rosenwing-of-santavaja-isle.html

2 Following Karlsen, Lockhart-Pedersen & Bjørnstad (2019a) we use the abbreviation TSA.

Img. 1–3: Examples of creatures developed by students for the fairy tale *Beauty and the Beast* (Belle and two versions of Belle's sisters). Photo: Kristine Høeg Karlsen.

role play (activity 6). A subject loop concerning maps, scales and number systems gives students an opportunity to revise these topics (activity 7) before they have to produce a scale map of the Fairy-tale Forest (activity 8). The students had to make sure that distances between the various landmarks and destinations on the map match. Two key questions form the basis for the activities in event 2; What do you think the environment in the fairy tale is like? and, What numerical system is used in the Fairy-tale Forest? These questions challenge the students to make choices concerning extent and size to complete the maps. When it comes to scale, some groups opted to use the decimal numbering system, while others chose a more creative approach (see Image 3). Th s is a way of incorporating mathematics into the approach in such a way that it becomes part *of* the fi tion (cf. Fauskanger, 2002).

Tab. 1: Extract from the storyline 'the fairy-tale forest'

Storyline	Event	Key questions	Activity in role	Activity outside role
'Th creatures'	*Event 1:* Establishment of the fairy-tale universe using a fantasy journey. The students create the creatures in the fairy tale.	What people or creatures will be in the fairy tale? What do you think these creatures will look like in terms of their size and appearance?	*Activity 1:* Fantasy journey into the fairy-tale universe. Led by the teacher educator. *Activity 2:* The students make stick dolls to represent their creature. Guidance-based. *Activity 3:* The students prepare a small role play where they introduce themselves: What do they say when they greet each other in the forest and how do they behave when they meet? Presentation to the class.	*Activity 4a:* Subject loop: The students will be given a brief presentation of the ways in which Storyline can be used as a cross-curricular and exploratory approach in mathematics. *Activity 4b:* Subject loop relating to Storyline and collaborative learning.
'The map'	*Event 2:* A letter arrives for all the creatures in the fairy tale. They are asked to make a map of the Fairy-tale Forest.	What do you think the environment in the fairy tale will be like? What numerical system is used in the Fairy-tale Forest?	*Activity 5:* 'Teacher-in-role'. One of the teachers takes the role of 'messenger' sent by the good people who send an important message to the creatures of the Fairy-tale Forest. *Activity 6:* The students close their eyes and try to imagine the fairy-tale worlds where they are (house, surroundings). Role play in groups: The students describe what the world looks like. *Activity 8:* The students create a scale map of The Fairy-tale Forest with supervision from the teachers. They choose the scale, numerical system and numerical symbols themselves.	*Activity 7:* Subject loop: Mathematics relating to maps, scales, numbers and numerical systems.
'Th story'	*Event 3:* The students prepare mathematical stories with suggested solutions.	Which narratives are pivotal for The Fairy-tale Forest?	*Activity 9:* The students prepare and solve mathematical stories. Guidance-based.	*Activity 10:* Subject loop relating to mathematical stories and their use in primary school for grades 1–4.
'The celebration'	*Event 4:* Conclusion with a display and storytelling.	How can you present an extract from the fairy tale to include all the creatures?	*Activity 11:* Teacher-in-role as queen of the 'Forest'. A legend is told (subject loop relating to 'communicating orally') *Activity 12:* Prepare a 'narrator's chest' and storytelling session involving a short role play based on the fairy tale that the students have been working on. Fairy-tale drinks and Fairy-tale cakes are served.	*Activity 13:* The students prepare a display of what they have produced during the Storyline (stick dolls and map, etc.)

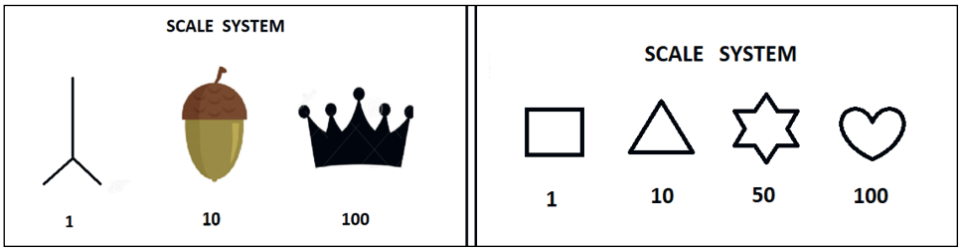

Fig. 2: Two examples of numerical systems developed by the students in the work in producing the map for the fairy tales *Cinderella* and *Beauty and the Beast.* The numerical system in *Cinderella* is made up of a crow's foot, nuts of varying sizes and crowns, but geometric shapes have been used in *Beauty and the Beast*.

In the third event, *The Story,* the students must prepare mathematical stories based on their maps (activity 9). We defi e *mathematical stories* in line with Klemp, Nilssen, Strømman, and Dons (2016) as, "open assignments where students write a narrative based on specific mathematical operation […] either on the basis of a given calculation, or by having the students use their own calculations, which can then be solved by mental arithmetic and illustration" (p. 133, authors' translation). The answer to the story is, according to Klemp et al. (2016) provided by a combination of the text and the illustration. Th s is a mathematical activity but may also be viewed "as a source of inspiration for text creation" (Wie, 2007, p. 17, authors' translation). The work of developing the mathematical stories, is based on the key question: Which narratives are pivotal for *The Fairy-tale Forest*? Students must use their maps and associated scales and numerical systems in the design of the mathematical stories and solution proposals. The students must then solve each other's mathematical stories, which include reading and writing, mathematics and use of formulas in calculating. An example of one group's story is: 'There are 2.500 fl wers in the meadow. 950 of the fl wers were roses. Beauty picked 53 roses. How many roses were left in the meadow?' The students were also given a subject loop (activity 10) illustrating the ways in which mathematical stories can be used in primary school to stimulate calculating, reading and writing within mathematics in the same learning process, in line with *knowledge of content and curriculum* Ball et al. (2008). Th ough their work with the map, the Fairy-tale creatures manage to close the portal to invaders and triumph over the evil people on Earth. Event 4, *The Celebration*, concludes *The Fairy-tale Forest Storyline.* Th s is marked in *The Fairy-tale Forest* with a storytelling session where the students conduct a short role play session. Fairy-tale cakes and Fairy-tale drinks are served. The students also prepared an exhibition of the stick dolls and maps. Image 4 presents an example of a section of one of the maps that were produced.

Research Design and Method

The Fairy-tale Forest Storyline was offered to student teachers as part of the ordinary but non-compulsory teaching. The students were recruited to our research project because they had participated in this teaching, and because we had access to these students as

Img. 4: Example of a map from the environment in *East of the Sun and West of the Moon.* Photo: Kristine Høeg Karlsen.

respondents. They were given information in advance regarding the purpose and scope of the study, along with information regarding what participation involved. Confide - tiality was observed and all of the data collected was processed in accordance with applicable research ethical norms, described in Guidelines for Research Ethics, Social Sciences, Humanities, Law and Theology[3]. The students gave their informed and explicit consent for participation in the research project in line with the Norwegian Data Protection Authority (DPA). It was specifi d that participation in the study was voluntary following Silverman (2014, p. 148), and that the students could withdraw their consent without giving a reason (ibid., p. 149). The study did not involve the processing of either direct or indirect personal data or sensitive data and was not notifiable according to the Norwegian Centre for Research Data (NSD)[4].

Selection, Recruitment and Data Collection

We performed a strategic selection (Thagaard, 2009) to ensure variation amongst the participants and to identify different perspectives relating to TSA. Six groups with a total of 24 students were invited to participate in focus group interviews after completing

3 https://www.etikkom.no/en/ethical-guidelines-for-research/guidelines-for-research-ethics-in-the-social-sciences--humanities-law-and-theology/

4 A discussion with NSD on 23 November 2018 revealed that the new changes in the legislation were not retrospective. The study does not need to be reported retrospectively.

the Storyline. Everyone consented to this. We conducted semi-structured interviews based on an interview guide or script covering four topics (Brinkmann & Kvale, 2015, p. 156). These were the students' perception of i) Fairy-tale fi tion, the events and activities, ii) individual learning outcomes, iii) relevance to future teaching in mathematics and iv) the interdisciplinarity of the approach. The interview guide outlined 15 suggestions for brief and simple interview questions (cf. Brinkmann & Kvale, 2015, p. 160). Examples of the questions are, 'Which parts or activities in Storyline did you like best?', 'Do you think this is an approach you will use in future professional practice?' The aim of focus group interview is to "bring forth different viewpoints on an issue" (ibid., p. 175). The risk, according to Bryman (2016) is that individuals or the entire group can take over the discussion (p. 522). Specific and critical follow-up questions guided the respondents through the interview, and at the same time helped to specify, structure and verify the responses of the participants (cf. Brinkmann & Kvale, 2015, p. 160–162). All the interviews were recorded, and each lasted an average of 45 minutes.

Focus group interviews may be challenging to transcribe because it is difficult to distinguish individual voices and interpret the content at the same time (Bryman, 2016, p. 521). A professional transcriber was used to transcribe the data in this study. The six interviews that were transcribed amounted to 125 pages. To ensure reliability, the transcriptions was compared against the audio recordings by the researchers and were considered to be satisfactory for research purposes. According to Tanggaard and Brinkmann (2010), the reliability "between different transcribers who transcribe the same passage, is very low" (p. 35), we have therefore chosen to use our own transcriptions in the quotes presented in this chapter. Furthermore, the quotes have been reproduced in a formal language to make the text easier to read, which means that hesitation, dead ends, jargon and dialects have been removed in line with Hjerm and Lindgren (2010, p. 133).

Data Analysis

In performing qualitative analysis, we used Creswell and Creswell's (2018) overall framework (p. 193–198). The data was coded in a number of rounds, that constitutes an iterative analysis process (cf. Bryman, 2016, p. 23). The fi st stage included a reading through all data to gain a 'general sense of the information and an opportunity to refl ct on its overall meaning' (Creswell, 2018, p. 193). Thoughts and tentative codes were written in the margin. Then, data was hand-coded line-by-line based on open coding; a process that started by tagging specific units of data with tentative *in vivo* codes (Corbin & Strauss, 2015, p. 85). The codes formed the basis of a comprehensive coding process where key sections and central concepts of the data were identifi d and named with more refi ed codes. In cases where two different key words (or codes) were used to code the same type of content in the data, one of the key words was selected. If a code name was closely related to a theoretical concept, we chose to replace it (see Bryman, 2016, p. 581–582). Th s coding process provided a good overview of the data (see Table 2, coding). The coding formed the basis for a textual description (see Lysne & Postholm, 2018, p 75) of each of the six interviews (presented below).

Tab. 2: Example of analysis

raw data		codes	theme
Student 1:	I thought it was very positive. I just sat there talking about it with [fellow student], saying that I was looking forward to school because we could carry on. I really like being creative and making things, and I think this could be a good learning experience for children […]	Positive experience Learning by doing/activity Learning outcome of pupils	Preparing, exploring and performing the tasks (theme II)
Student 2:	I think it was a good thing to bring into maths because you don't really think about the fact you are doing maths, even though you actually are.	Broadened view of mathematics The mathematics is hidden/practical	
Student 3:	I think Storyline is quite well suited to grades 1, 2 and 3.	Relevant to students in primary school	
Student 1:	Yes, yes, yes, you take it		
Student 4:	…you're just not sitting there doing maths and Norwegian, but you're still learning about it all the same, just in a completely different way…	Learning by doing/activity	
Student 1:	… from if you were just sitting there doing maths, you would have just been told 'this is what a circle looks like' and that's how it is, while with this you *see* you see it properly […]	Learning by doing/activity	
Student 4:	I also thought it was great fun when [the teachers] came in and had dressed up because it created…	Teacher-in-role/positive experience	Playing out the Fairy-tale story (theme I)
Student 2:	A good atmosphere because you could see that the teachers were taking it just as seriously as we were […]	Cooperation in relation to learning	

The next stage involved identifying links between the coded categories identifi d and expressed in the overall themes. The themes identify different perspectives in the material and are supported by many different quotes in line with Creswell and Creswell (2018, p. 194). In this way, the themes constitute 'the most central element' of a qualitative analysis (see Hjerm & Lindgren, 2010, p. 1Þ) and constitute the main fi dings of the study (see Creswell and Creswell, 2018, p. 194, authors' translation). The themes in this study were developed through a dialectic process between data and theory with the aid of a so-called abductive reasoning (Bryman, 2016, p. 394). The description of the six interviews together with the coded transcribed material were used in the analysis. Text extracts were grouped around the patterns that manifested themselves in the material. We consider these patterns to be central to the research question, in line with Hjerm and Lindgren (2010, p. 118).Table 2 provides examples of the thematisation of the codes, arranged in a hierarchical system (see Hjerm & Lindgren, 2010, p. 116).The objective was to fi d patterns and connections between the categories to identify opportunities and limitations that the Storyline *The Fairy-tale Forest,* gave for the teaching of the students across the interviews.

The analysis identifi d the following three central themes: i) Playing out the Fairy-tale story; ii) Preparing, exploring and performing the tasks; and iii) Learning through a Meta-Storyline.

Textual Description of Each of the Six Interviews

Th s section presents textual descriptions of each interview emerging through the open code process, constituting six narratives (A-F) that contextualise the students' perceptions and experiences of the Storyline. The narratives show trends in the material in relation to the opportunities and limitations stemming from TSA as regards the learning of mathematics.

Narrative A

The four students in this interview gave a clear indication that participation in activities 2, 6 and 12 (c.f. table 1) helped them to realise that, in addition to involving the body and emotions, mathematics can be both explorative and creative. The students said that their own participation in the Storyline had given them a broader perspective on the teaching of mathematics. They found that mathematics can be included in fi tion, where they use mathematics without refl cting on the fact that they are in a learning situation. They also discover the everyday mathematics as shown in this excerpt,

Student 3: Perhaps you see the subject in a slightly different way […]
Student 4: Maths in practice like…
Student 2: Yes, in daily life
student 4: It's very easy to think that maths is 1+1=2,but maths is of course in *everything* in a way, or is at least involved in an awful lot of what we do in some way.

The students believe that TSA will captivate many pupils, especially in primary school, as one person put it, 'I really wish we'd worked more like this at my school'. It's the surprising elements (activities 1, 5 and 11)and the creative, playful and craft activities (activities 2, 8 and 9) in particular that they believe will attract the pupils. The time frame proved to be the largest challenge in this particular Storyline. Th s led to unnecessary stress and allowed less of an in-depth focus than these students desired. Switching in and out of the fi tion and narrative through the subject loops (activities 4ab, 7 and 10) also proved challenging. They convey a desire to try out TSA in the following placement practice in schools and claimed that the experience they had gained through TSA gave them far better learning outcomes than a three-hour lecture session for example. About this, they said,

Student 1: No, it would have been like 'yes, we've got it', but now we've actually tried it out

Student 4: I think it's now also more that we would like to *use* it. I don't think I'd have been so enthusiastic if we had just heard the teachers describe 'Storyline – this is this, and this, and then you do this and so on'.

Narrative B

The four students in this interview found TSA to be exciting, educational and useful because the activities can be taken straight into primary school. The students most liked the activities where they themselves could be creative and active (activities 2, 8 and 12), in addition to the activities where the teachers also took on roles (activities 5 and 11). TSA gave the students new ideas for teaching mathematics that stimulate play, exploration, fantasy and a desire to learn. The following text extract provides an example of this,

Student 5: I feel that it doesn't just need to be calculations in front of a blackboard or in a book. It can be done in many ways, using play, painting or by cutting and sticking. Just like when we used geometry and sizes in the work with [the creatures]. These are things that you have to learn in mathematics.

Student 8: […] and in a way, the fact that you entered another reality, so when you use maths, I felt that this wasn't a boring super-sized maths lesson, but I felt 'Yes, this is something we have to figu e out', you know. I think that children are also even more involved with the thought that 'Oh, we have to work this out, don't we, so that we can solve something fun'. I think that's really good.

The students explained that Storyline enabled them to understand how mathematics can form part of a cross-curricular approach to teaching, and how mathematics is part of daily life,

Student 6: It might be a bit better for those who don't like maths, that it is sort of like a secret conscious fool-your-way-into the Norwegian.

Student 5: […] for example, when we were working with shapes, this was of course mathematics, because it involved similarities between shapes and the different sizes of the shapes. And perhaps it made the pupils more aware and think 'look, maths is actually involved here'

Student 6: […] And then the pupils might actually feel like 'Oh! That was actually fun! We've done lots of maths! I got it!' Th s gives a good sense of mastery.

In general, these students believe that Storyline will captivate many pupils because, amongst other things, 'they are drawn into an entirely new world' and the subject of mathematics becomes more fun and interesting. The students also noted that pupils with learning difficulties would particularly benefit from a teaching approach that places an emphasis on activity, creativity and cooperation. The students felt that the time frame was a challenge and that the subject loops (particularly subject loop 7) could have been developed further so that the subject matter could be reviewed in greater depth. The students were agreed that they would like to see more Storyline as part of the teacher education, and last but not least, they would like to try out Storyline at school.

Narrative C

These three students felt TSA was fun and educational. They like fairy tales and the fact that they share, quoting two students 'a common interest in fairy tales [with the teachers]', and 'the fact that the teachers wanted to communicate with us in this way was very good'. They describe a co-student who does not like fairy tales, and that 'this version of Storyline may perhaps have been more challenging for her'. For these students, the biggest challenge was the oral in-role presentations of the creatures (activity 3) and the 'Fairy-tale time' (activity 12). The event was sprung on them too quickly in such a way that they did not have enough time to mentally prepare themselves for the performances. The time frame was too tight and resulted in stress.

Nevertheless, the students felt that Storyline provided new and practical input into working with mathematics in schools. They explained that they did not recognise the mathematics in the Storyline, but that the supervision when working with the creatures (activity 2), the map (activity 8) and the mathematical stories (activity 9) helped them recognise it, for example, by the fact that the fairy tales had magical numbers and shapes, and the maps had scales. They felt that the Storyline brought out a more playful and humorous side in the teachers. The cross-curricular teaching was also characterised as positive and timesaving because more than one subject was covered. Seeing the link between several subjects is meaningful according to the students, who also gained a greater understanding of how much planning is involved in such a teaching approach,

> …Perhaps I now consider the role of teacher to be a bit more demanding than I fi st thought when I started the course. I now see how much work goes into an approach like this and how much responsibility we will have when we leave school. There's a lot of preparation involved.

They felt TSA would be very educational for the pupils, particularly those with learning disabilities. They would like to use Storyline in the future, as long as other teachers are on-board with it. Personal experiences of Storyline are crucial in determining how it can be used in practice.

Narrative D

The three students in this interview liked the fact that alternative approaches to teaching are being highlighted in teacher education, although they did not like every aspect. Some were 'frightened by the fact that they would have to take part in role play' (activities 3 and 6),

Student 15: It's a bit strange to have to stand in front of quite a new class and try to be in character, to be completely absorbed in the role […]
Student 13: It was also a bit strange to suddenly have to get into character […]
Student 14: I felt that when everyone stood up and explained who their character was, there was a little bit of giggling going on because we didn't take it completely seriously. We struggled to take it seriously.

They would rather have had a demonstration of the task with some pupils, so that they didn't have to take on roles themselves. The fact that everyone had to present themselves in role, was seen as pressure. They explained that they were unable to enter into the spirit of the fi tion because it felt a bit childish to them and the timeframe was too tight,

Student 15 As has been said previously, it didn't work. We had a very limited amount of time, and of course we're a lot older.
Student 12: It was a bit stressful and it was also a bit silly.

However, these students could see that the role play might work for children who are more playful and who have more imagination and are able to enter into the spirit of the fi tion. They also believe that the pupils would fi d it rewarding to do something completely different from 'just sitting and writing, or sitting and reading'. They believe it is important for children to use their imagination and that they have scope to develop themselves at school, partly because many children also spend a lot of time in front of screens.

However, the students are unsure about the specific learning outcomes associated with using Storyline in the teaching of mathematics, as they had difficulty seeing the mathematical content within this Storyline. For example, when they had to make the map, they enjoyed painting and playing with glitter, but they 'couldn't understand why exactly'. They also explained that it was difficult to prepare mathematical stories, because when 'the houses became two kilometres long, it was obviously completely wrong', which might help them to realise the importance of correct scale. They thought that the activities would have worked better 'without the subjects, or if only pure imagination were involved'. They were aware of the mathematics during the guidance but

did not think it was an effective way of learning mathematics. They thought perhaps it might have worked better if they had more time, a more detailed subject loop or more individual guidance in the group. For example, they were unsure what benefits there would have been for grade 1 students. General remarks,

> … it was difficult to see the mathematics within this Storyline […], and I think in a way nobody thought about the subject, and therefore we didn't learn anything about it either. Mathematics was excluded in a way. Not until the mathematics in this Storyline was explained to me, I could not see it.

They explained that there was a lot of silliness in their group and that they could not take the activities seriously, and that 'those who took it seriously certainly enjoyed themselves, […] it was just that Storyline didn't quite work in our group and it wasn't enjoyable'.

Narrative E

The five students comprising this group, considered Storyline to be a good experience. They liked the creative aspects the best, and spending 'a little time away from pen and paper and PCs and being able to talk together', but the timeframe was too tight. The role plays were thought to be unpleasant, but they still learned a lot from them, which they would not have picked up otherwise. They felt TSA offers good variation in the teaching of mathematics, and they recognised the mathematics such as scales, shapes, sizes, mathematical stories and how they had to work with area to customise the map to a limited area of the distributed cartons. They also explained that TSA offers the potential for discussion and cooperation relating to mathematics. The pupils benefited from working together and there was a strong element of social learning, and they thought pupils would like Storyline and that it was exciting. When teaching is cross-disciplinary, the pupils have to combine knowledge and skills from different subjects, which, in the opinion of the students, promotes motivation and interest,

> In cases where there is someone who is struggling with maths, then Storyline might be an option, and they might then consider that it is not so bad. They might perhaps see a subject they do not like in a different light.

They feel that they have learnt a new approach for teaching mathematics. They feel that they might use TSA in future. They are pleased to have experienced Storyline for themselves because it means they will remember the approach better.

Narrative F

The four students in this interview, explained that they were left with a good impression of Storyline, and they liked the fact that they could participate in a Storyline themselves. They like the creative aspects where they could 'do something with their hands'. They could imagine using TSA in their future teaching, and thought it was 'very nice

to have such a *very* specific approach that you can incorporate in a school context'. They could also imagine participating in further Storylines during teacher education, but for other topics and subjects, because 'Storyline isn't simply a fairy tale, it's much more than that'. The students could immediately see that the Fairy-tale theme involved imagination and exploration, but they explained that they could not entirely *see* how other, more theoretical topics, could be brought alive through a Storyline. The students generally lacked more information concerning TSA and the justifi ation for the various events in the learning process. They also called for a more specific presentation of how a teacher can plan a Storyline,

Student 22: I think perhaps we should have had a little more information beforehand about Storyline itself, for example, what type of approach is it? Because we weren't particularly aware of it, our main focus was on *exactly* what it was we were supposed to do; make the doll and the house, without spending time observing

Student 23: Yes, a little, why

Student 21: There was a lot to consider when you had to think 'OK, what are we doing now purely in terms of approach, while at the same time having to make the doll, which would have been fi e with more information.

Student 23 I thought that we didn't learn enough about the template and that there was too much focus on the specific tasks […] because the point wasn't that we should do it, but that we should learn more about it, so more about it then

Student 20: How would we go about planning an entire Storyline?

Student 23: A little bit more meat on the bones, then

They felt it was difficult to get into the spirit of the fi tion; the content passed them by to some extent because they were adults. Playing a role was difficult, artific al and uncomfortable. They pointed out that there was not enough time. They did not prepare themselves properly for these activities (activities 3 and 12), either mentally or physically,

> … because we had to race through it and 'we had to get it done in five minutes', and so it felt overwhelming, and people with any form of social anxiety would need more time to prepare themselves mentally. When you also need to take on a role and use a voice that is different from your own, then you need to be a bit more robust and this can be unpleasant.

They thought that the fairy tales they worked with, *West of the Moon* and *Maiden Rosewing of Santavaja Isle,* were not very accessible and made for heavy reading. They lost motivation. The students were generally very focused on what they should do, make and arrange, and did not feel that they learned very much in the way of mathematics. Nevertheless, they felt that Storyline 'was something for the kids' and they were keen to try out this approach with their future pupils. Pupils fi d it boring just sitting with 'dry' blackboard teaching, which destroys their motivation and interest in subjects. They feel that Storyline will make teaching fun and pleasurable. TSA is a good way for children to learn numbers 'and perhaps it's a good way to get people who are not that interested

in maths to suddenly have a few light bulb moments'. Storyline can give both a sense of mastery and motivation. The students liked the way the subjects were woven together because their pupils would discover and refl ct on the links between themes across the skills objectives in the curriculum. They think this is benefic al because it enables pupils to put their learning into context,

> … when they put their knowledge into practice, and they had to fi d information and learn about different things, this gives meaning rather than simply struggling through things. You get to put the learning into a system, which can give them fresh motivation and learning.

According to the students themselves, they felt that they had acquired some tools to make the teaching of mathematics more accessible and fun for the pupils. They also realise that such an approach requires good planning and good cooperation between teachers over time. They feel that it is important that Storyline is well anchored in competency goals for the curriculum and is not something that is simply 'fun'.

Results and Discussion

In this study, we aimed to explore how student teachers perceive the mathematic knowledge at play in a *Storyline* focusing on fairy tales implemented in teacher education for students preparing to teach grades 1–7. The following themes are analysed and discussed based on the six narratives, i) Playing out the Fairy-tale story; ii) Preparing, exploring and performing the tasks; and iii) Learning through a Meta-Storyline. The three main categories were analysed to investigate the potential of TSA with regard to the development of mathematical pedagogical content knowledge (cf. Ball et al., 2008), viewed in the light of Midtsundstad and Willbergh's (2010a) didactic perspective.

Playing out the Fairy-tale Story

The Fairy-tale Forest invites the students to enter a Fairy-tale universe with figu es and creatures that they recognise from child and youth culture, where they meet teacher educators in roles such as 'messengers' and 'fairy queens' (see table 1, activities 5 and 11).The study shows that the students were surprised when their teachers took on roles, dressed up and were *in* fi tion. Th s role play helped to create a good atmosphere and the perception of good cooperation in relation to common learning goals. Th ough the role play, the students gained a broader understanding of what the role of teacher entails in terms of play and imagination. The study shows that student teachers have a desire to be creative teachers who dare to use different approaches to the teaching of mathematics, and as one student put it, 'that's the kind of teacher I want to be'. We interpret the students as implying that TSA provided useful input in relation to the role of teacher, and that therefore they found the content to be meaningful (cf. Midtsundstad & Willbergh, 2010b). Th s result can also be interpreted as implying that the students found that mathematics can be placed in a fi tional framework, which, according

to Fauskanger (2002), can be challenging. Thus, in this way, the activities promoted the development of knowledge of content and teaching according to Ball et al. (2008, p. 401), where they have experienced how varied pedagogical choices in the design of the teaching have effected and promoted new learning experiences.

The events in Storyline furthermore suggested that the students should themselves take roles and play along with the fi tion (activities 3, 6 and 12). The study illustrates that the students found this both challenging and daunting. Nevertheless, some students could see the value of this, because Storyline provides training in standing in front of a group of people, something they realise they will have to master as teachers. We understand this to mean that the students associate the content of the activities with a skill they must develop as future teachers, and TSA would appear to be relevant to them (see Midtsundstad & Willbergh, 2010b, p. 11). However, other students found the role play activities to be of little value. Besides fi ding it challenging and daunting, they also thought it was embarrassing and uncomfortable. The justifi ation for this was that they are adults and that using a voice which was different from their own did not come as naturally to them as it would for a child. Th s is a result that is confi med by Karlsen et al. (2019a), where students were 'refusing to join the fi tional in-role activities' (p. 156). In our study, the students stated that the timeframe was inadequate to allow thorough preparation, either physically or mentally. They felt that a demonstration would have adequately enabled them to get the point that children think *this* is fun.

Fiction and the ability to live in a fi titious universe are entirely pivotal elements in Storyline (see Bell & Harkness, 2013; Omand, 2014). When the teaching does not invite immersion in the story itself, the students lose the potential that is afforded by such activities for learning, exploration and sharing perspectives. However, although the study demonstrates that the students did not master the role play, this does not necessarily mean that the instruction is of low quality (cf. Hopmann, 2010). It could mean that the Storyline fell outside *the student teachers*' area of interest and had a demotivating effect. Because individual student teachers felt that the learning in mathematics was *too simple,* although this formed a basis for a critical view of the choice of events and activities facilitated by this Storyline, one has to remember that the topic in fi st grade seems simple for adults. Th s could be interpreted as expression that this particular Storyline did not take into account that student teachers are adults; not taking seriously the corresponding model of Ball et al. (2008) in line with Valenta and Enge (2015), who claim that teacher educators must use *their knowledge within the field of mathematics and students* to plan for and develop high quality teaching for the student teachers. Nevertheless, *The Fairy-tale Forest* was designed in such a way that the students could ultimately implement it with minor adjustments in schools. The limitation of this, was that the students found it unnatural to enter into roles such as Cinderella or the Beast, and thus the choice of fairy-tale fi tion was a limiting factor that made little sense to these students (cf. Willbergh, 2010, p. 49).

The challenge within the teacher education context is designing a Storyline that appeals to the student teachers and creates a desire and motivation to explore the fi - titious universe (e.g. Valenta and Enge, 2015). One possible option could be to use an adult fairy tale such as the fantasy genre, which most students will be familiar with from

series and books such as *Game of Thrones*, *Lord of the Rings* and *The Walking Dead*. The limitation with such fi tion is that the Storyline requires more adaptation to work in primary school. It is also likely to be more difficult for the students to see the relevance of such a Storyline to pupils, particularly primary school pupils, and therefore also limits the potential for the students to acknowledging in line with Ball et al. (2008) the pedagogical knowledge relating to the content and the pupils. We feel there is a need for more research into how the elements in the Storyline role play can be designed in such a way that student teachers can see participation in the fi tion as being meaningful (cf. Midtsundstad & Willbergh, 2010b).

Preparing, Exploring and Performing the Tasks

The study proves that the students consistently enjoyed the activities where they could be active and make things (i.e. activities 2, 8 and 9). Apart from the timeframe, which created unnecessary stress, the students were able to experience new ways of learning mathematics through practical activities involving the body and emotions. In order to complete the tasks, the students found that they had used mathematics almost without realising it, and that this had 'sneaked its way in'. With guidance, they recognised that themes such as geometry, numeracy and numerical systems, maps and scales, were involved in the events, and had to be interpreted correctly, in line with Ball et al. (2008, p. 403) domain 'common content knowledge'. Once they discovered the mathematics, several students expressed a positive 'Aha!' moment, where they could see links which they had previously been unable to see. Th s discovery enabled them to gain a greater understanding of what mathematics *can* be in primary school. And when they started out with the maps and wrote mathematical problems in their own words (activities 8 and 9), making mathematical stories, they got a glimpse into the domain 'specialised content knowledge' (a skill unique to teaching), in line with Ball et al. (2008). The students had to use mathematics in order to perform the tasks, e.g. counting the number of roses in the meadow[5]. The students felt that such tasks can be a good method, for example in learning to count, which is a skills goal above grade 2 in the mathematics curriculum in primary and lower secondary school for grades 1 to 10, in The Norwegian curriculum Knowledge Promotion (Directorate for Education and Training, n.d.). The students feel that such tasks help to develop an understanding of numbers (Skills goal above grade 2, Directorate for Education and Training, s.a.a), something which confi ms previous studies. For example, Solstad (2009) considered TSA to be ideal for developing an understanding of numbers (p. 101), while Fauskanger (2002) argues that Storyline is a good arena for working with counting, because counting 'is an important activity in the teaching of mathematics to beginners' (p. 318).

During the task, the students found that they built up cross-curricular knowledge, in which mathematics played a major role, in accordance with Fauskanger (2002, p. 308). The study shows that the students believe that they have a good tool to facilitate learning in mathematics in ways that promote imagination, play and exploration. It

5 The example is taken from the group that worked with *Beauty and the Beast.*

appears that the students can see the relevance of Storyline in the future teaching of mathematics, and that Storyline is considered to be meaningful (cf. Willbergh, 2010, p. 49). We interpret this as indicating that the students have developed a knowledge of content and teaching (e.g. Ball et al., 2008). In line with Christensen (2007), who claims that pupils who immediately perceive the instruction as meaningful, will be more easily engaged and thus take responsibility for their own learning (p. 21), these students experience a cohesion between learning in mathematics and perceived relevance. Th s result confi ms Solstad (2009), who reported that "more than 80% of the students and about 75% of the teachers agreed that the approach is very well, or well, suited for the basic teaching of numeracy" (p. 101).

The study shows that the students believe the activities characterised by play and exploration will create engagement amongst pupils, particularly amongst pupils who do not like mathematics or who have learning difficulties. Th s is in line with Fagernæs (2003a), who claims that especially in subjects like mathematics, it is important to allow for pupils to be explorative, and when using The Storyline Approach, the pupils are given time for curiosity and refl ction (p. 25). Further, the students also believe that such an approach to learning will help pupils to see the links between different subject areas. When the pupils combine knowledge and skills from diverse subject fi lds, they believe this creates an engagement and interest in mathematics. The fact that the student teachers believe that Storyline will help to create pupil engagement confi ms the results found by Murray (2016). In her study, one of the students stated, 'I loved learning about the approach as a way of engaging [pupils] in what they are learning' (p. 269). When the students in our study consider the diversity of pupils at the school in relation to the variation in interests, motivation and subject level, they can see that they can *reach* more pupils through Storyline specifi ally because they have this knowledge of the pupils in line with the domain, 'knowledge of content and students' in Ball et al. (2008, p. 401). Th s could mean that the teaching content chosen in *The Fairy-tale Forest* was defi ed in a way which enabled the students to see the content as being meaningful and relevant (cf. Midtsundstad & Willbergh, 2010b). That Storyline can contribute to good experiences and learning for student teachers confi ms previous research (for example, Karlsen et al., 2019a).

Although the main trend in the material is that the students perceive Storyline to be a good approach for teaching mathematics, we must stress that the students in interview D represent an alternative view. These students are unsure of the learning outcomes in mathematics when using Storyline in school. They justify this by claiming that they struggled to discover the mathematics and that they believe that pupils would do the same. We interpret this to mean that the selected activities did not adequately enable these students to see the potential for gaining knowledge within the 'content and student' domain as defi ed by Ball et al. (2008). More detailed subject loops and more supervision during the tasks may have resulted in better learning for these students and could refl ct the fact that the learning within this Storyline did not relate to these student teachers in line with Valenta and Enge (2015).

Learning Through a Meta Storyline

The Fairy-tale Forest was a 'Meta Storyline', where the students would learn *about* TSA through their own participation in a Storyline. *The Fairy-tale Forest* had three subject loops relating to Storyline as an approach to teaching and learning (activities 4a, 4b and 10). The study shows that the students found transitioning in and out of fi tion to be challenging; i.e. being *in* Storyline and simultaneously learning *about* Storyline. They felt that the subject loops should have been covered in greater detail. In general, they felt they needed further information on TSA itself. However, the study also shows that the students believe it was important that they could *experience* a Storyline for themselves, so that they could see how this approach works in practice (not just receiving the theory). They thus felt that a lecture on TSA would not have resulted in the same learning outcome. Th s fi ding confi ms Falkenberg (2016), who explains that the best way to learn about TSA is to actually participate in a Storyline (p. 220).

The fact that the students experienced challenges with the Meta Storyline confi ms the results of the study conducted by Karlsen, Bjørnstad, and Lockhart-Pedersen (2019b). The fi dings show that the student teachers had problems in understanding the difference between a Meta Storyline and an ordinary Storyline, which caused frustration and uncertainty. The fact that the student teachers wanted more theory on TSA might suggest that they feel unsure how Storyline can be used when teaching mathematics in schools. In such cases, the potential of the Storyline may be weakened as regards the development of knowledge of content and teaching (e.g. Ball et al., 2008). One solution to improving the Storyline would be to strengthen the theoretical subject loops. However, such a change would take the students out of the fi tion for a longer period of time, which would not be desirable as part of a Storyline. Although the subject loops represent an important tool in TSA (Eik, 2000), they must be used with caution for the reasons described above. Another solution would be to facilitate a two-part teaching approach, such as that proposed by Murray (2018), where the students fi st participate in an ordinary Storyline (without the Meta perspective), and then in the following, they learn the theory of TSA where their experiences are linked to curriculum matters, and to the content of students (pupils) and teaching. When the students worked with the curriculum to fi d the topics related to the activities in the Storyline, they recognised most of the topics highlighted in mathematics, thus they increased their knowledge of content and curriculum, in line with Ball et al. (2008). Future research is required to identify the best approach for students to perceive the content of Storyline as being relevant (cf. Midtsundstad & Willbergh, 2010b; Hopmann, 2010) in order to develop a pedagogical content knowledge within the fi ld of mathematics.

Conclusion

Th s study demonstrates that through *The Fairy-tale Forest*, students have found a specific approach which will enable them as future teachers to organise and adapt the teaching of mathematics in primary school to create engagement and a desire to learn amongst their pupils. They believe that TSA has helped them on the way to become the

teachers they want to be – people who facilitate exploration and creativity while at the same time having a good knowledge of their subject. And as previously mentioned Ball et al. (2008) encompasses the knowledge a pre-trained teacher should have, but it is not possible for them to acquire all these six parts of the knowledge during this Storyline. Still in summary, the study demonstrates that *The Fairy-tale Forest* offers potential for the development of pedagogical content knowledge within the domains of *knowledge of content and curriculum*, *content and students,* and relating to *content and teaching*. The Storyline was designed in such a way that student teachers should ultimately be able to implement an adapted approach in primary schools. The study illustrates that this has provided opportunities for consideration in relation to pupil diversity, learning and motivation in the lower school grades. The practical activities where the students could work with mathematics like number, number system, geometric shapes, scale, units of measurement, symmetry, formulas and mathematical stories in an exploratory way was something they believed would create considerable engagement, both with respect to school as a whole and in connection with pupils who struggled with mathematics. With this in mind, we will argue for the possibility to design Storylines, which address and go in depth into other domains of the framework for mathematical knowledge for teaching in Ball et al. (2008).

In this study, the fact that *The Fairy-tale Forest* invites refl ction in relation to the teaching of mathematics and pupils at school must be interpreted as an opportunity for the content to contribute to the development of knowledge in the domain *content and students.* Furthermore, the study illustrates that role play conducted by teachers helped to broaden the views of the students in relation to what the role of teacher entails. The students discovered new opportunities to create variation in the teaching of mathematics. Th ough the approach, the students discovered practical mathematics and ways in which a cross-curricular framework can be applied where mathematics has a natural place. The fact that the students could themselves participate in a Storyline creates motivation for testing the approach as future teachers. They found that they had acquired a new approach they could take with them into schools, and that they have developed their knowledge of teaching mathematic through this approach. Overall, this could be interpreted as an opportunity for the content to contribute to the development of knowledge in the domain *content and teaching*. The following elements of TSA may have had a limiting effect on the students' development pedagogical content knowledge: The students were uncomfortable about having to adopt roles in the fi - tion. Because the fi tional element is an important instrument in Storyline, there will be a need in future for expanded and detailed research into how the fi tional aspect of Storyline can be made to appear attractive, relevant and immediately engaging to student teachers. Furthermore, the students did not believe they were given suffici t theory regarding TSA and that this led to uncertainty in relation to implementation. Th s demonstrates a need for more knowledge of the ways in which Meta Storylines can be used in teacher education in general, and how Meta Storylines can facilitate and captivate students learning and development of mathematical pedagogical content knowledge, in particular. More research within this fi ld is needed in the future.

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Chapter 9

Take Action!
Encountering Disorienting Dilemmas in Order to Include the More-Than-Human World – an Act of Sustainable Thi king

Margaretha Häggström and Linus Djurstedt

Abstract. Th s chapter is based on a one year-long participatory action research study, including 22 students in a compulsory Grade two class (year 8–9). The general aim with this study is to shed light on the pupils' actions regarding disorienting dilemmas they encountered in the nearby forest, through a six-week long Storyline. An underlying purpose is to study the role of the teacher, and the interaction between the teacher and the pupils. The teacher's aim with the Storyline was to create a Storyline in which the students were enabled to enhance ecological literacy. The result shows that the students developed action competence for sustainability. One essential prerequisite for this to happen was the teacher's flex bility and open-minded approach that allowed for unplanned events to occur.

Keywords: Disorienting dilemma, sustainable thinking, plant blindness, affective learning theory, action research, autoethnography

Introduction

Life on earth is at risk. Forests are burning, we witness dangerous fl oding and the oceans are becoming seas of plastic. Different kinds of pollution have been a problem not only for decades but for centuries. Climate change is one of the issues that children and young people are most concerned about (Strazdins & Skeat, 2011,Ojala & Bengtsson, 2019; Unicef, 2019). Hickman (2019), who has studied children's views on climate and biodiversity crises talks about eco-anxiety. Children she talked to acknowledge their exposedness in the wake of climate change as they simultaneously worried about the more-than-human world. According to UNICEF (2007, 2019), and different scholars around the world (Wals, Brody, Dillon & Stevenson, 2014; Stengers, 2015; Head, 2016; Wals, 2015, 2017; Körfgen et al., 2017) education at every stage should include environment-related topics in the curricula. Jickling et al., (2018), Taylor & Pacini-Ketchabaw (2018) and Lindgren and Öhman (2018) request educational shifts regarding issues of sustainability. UNICEF also suggests that children ought to be given a greater voice on climate change issues. But who will listen? That is a question to be asked.

"We, the children of the world, are ready to work with you. Are you ready to work with us?" These are the challenging and hortative words of child delegates to the 4th World Water Forum in Mexico City (ISSUU, 2004). The response to this request must be "a resounding 'yes' because what is good for children – reducing pollution, safe-

guarding education and health, preserving environmental diversity, protecting water supplies, increasing access to proper sanitation – is also good for the planet" (Veneman, 2007). Now, fi een years later, this has become more critical than ever, something that has been represented by the young Swedish climate activist Greta Thunberg. She has been recognised due to her weekly strikes outside the Swedish parliament in Stockholm. Th s strike has been a worldwide spread, known as Fridays For Future (www.fridaysforfuture.org), and includes more than 130 countries. Time Magazine (2019) list Thunberg as one of the 100 most influential people in the world and she is predicted to be one of the next generation's leaders. Climate anxiety has eventually been taken seriously. In September, 2019, Thunberg spoke to New York climate strikers and said "we don't want adults to tell us that they really admire what we do, we are doing this to wake the leaders up, we are doing this to get them to act (…) we will make them hear us." (Guardian News, 2019)

The human-induced changes in the processes of global eco-systems have pushed our planet into a new geological epoch named the *Anthropocene* by Crutzen and Stoermer (2000). The Anthropocene is, concisely, the "time intervals in which earth's bio-geo-chemical processes are substantially influenced by human activities such that they leave a permanent record in the planet's rock strata" (Olvitt, 2017, p. 396). Consequently, the balance that ecosystems sustain is jeopardised. In order to restore the balance and prevent more collapses, we need to conceive new paths of living and new versions of ourselves. Th s will be a serious and emotional challenge, Head (2016) stresses. Furthermore, it will require signifi ant attention in education, which is acknowledged in the 17 Sustainable Development Goals from 2015 (UN, 2015) and in the increasing numbers of academic articles based on educational research. However, as Wals (2015) points out, the issue of environment and sustainability, generally, is given insuffici t attention in education. In line with Head (2016), Wals pays attention to the emancipatory perspective "where the nature of the sustainability crisis calls for a rethinking of values, reconnecting people with places and leading meaningful, ethically defensible and globally responsible lives" (Wals, 2015, p. 7). However, education should not be viewed as an authority that will prescribe and dictate how to behave and live our lives, or what to value, or even how to teach about sustainability issues. The role of education is rather to develop pupils' understanding and to offer meaningful engagement and opportunities for connecting with humans as well as with the more-than-human world (ibid.).

There are various pedagogical approaches to tackling the topics of climate change, environmental concerns and sustainability. Transformative learning (Mezirow, 2000; Illeris, 2014), ecological aesthetic education (Wallen, 2012), art-based environmental education (Mantere, 1992; van Boeckel, 2013), post-humanism (Malone, 2018) and critical realism (Olvitt, 2017) are examples of such approaches. Encouraged by these different though overlapping and partly related approaches and their cautiously optimistic view on environmental education in the Anthropocene, we suggest that affective learning theory (Cobb, 1997; Gurewitz, 2000) co uld underpin this variety of pedagogies.

Th s chapter concerns a study conducted with 22 students in one elementary school class, Grade 2 (8 years old), on the outskirts of Gothenburg in Sweden. In this text, the pupils' association with, commitment to and concerns about the more-than-human

world, specifi ally the connection with trees in a nearby forest, are linked to the notion of Anthropocene. We will also discuss pupils' actions when they encounter what could be expressed as *disorienting dilemmas* (Mezirow, 2000) while being with the more-than-human world, especially trees and other plants. The project was inspired by transformative learning, and its emphasis on critical self-refl ction (Mezirow, 2000); ecological aesthetic education that stresses that aesthetics affect the practice of ecology through personal experiences (Kovacs et al., 2006); art-based environmental education and its call for sensory involvements and ethical concerns (Mantere, 1992); a post-human approach that demands a critical rethinking of human relationships with the more-than-human world and children's need for a sense of belonging (Malone, 2018; Taylor & Pacini-Ketchabaw, 2018); and a critical realist approach regarding ethical-moral challenges that will be faced in the age of the Anthropocene (Olvitt, 2017). The interaction with trees and other plants was encouraged through a six-week-long Storyline in one school class in a suburban elementary school.

The overall aim with this study is to shed light on pupils' actions regarding the state of the forest they encountered, including its trees, through autoethnographic vignettes. Another aim is to study the role of the teacher, in this case a student teacher, and the interaction between the teacher and the pupils. Research questions are:

- How do the participating pupils act in the forest?
- What do the pupils express with regard to their actions?
- How does the student teacher respond to the pupils' actions?

Chapter Structure

The chapter is structured in four parts. Firstly, the chapter starts with a short background to contextualise the study. Secondly, the methodology of action research and autoethnography is presented, followed by the context of the study. Thi dly, we present the theoretical departure. Fourthly, the result of our experiences of being in the classroom and in the forest together with one class during the Storyline is presented as personal autoethnographic vignettes, arranged chronologically and commented on theoretically. Th s means that the empirical data is intertwined with and refl cted through learning theories, throughout the result presentation. Finally, the content of the vignettes is examined in a fi al general discussion, including ideas for future research and teacher education.

Background

The study as a whole is conducted in a compulsory school with ca. 270 students, in two classes, in grade 2 (year 8–9), including 22 students, and grade 6 (year 12–B), including 29 students. The school is located in the outskirts of Gothenburg. Next to the school, there are two forest areas. Lessons usually take place indoors and normally there is no explicit outdoor pedagogical perspective integrated. Th s chapter is concentrated on the second-grade class.

In order to prevent plant blindness, i.e. the "inability to see and notice the plants in one's own environment – leading to: (a) the inability to recognise the importance of plants in the biosphere, and in human aff irs; (b) the inability to appreciate the aesthetic and unique biological features of the life forms belonging to the Plant Kingdom; and (c) the misguided, anthropocentric ranking of plants as inferior to animals, leading to the erroneous conclusion that they are unworthy of human consideration" (Wandersee & Schussler, 1999) – two teachers together with one student teacher (Author Two) decided to change and develop their teaching through an ecological literacy approach. Ecological literacy was here based on the *Four resources model* by Freebody and Luke (1990), which includes code-breaking, meaning-making, use and critical analysis. The model focuses on language literacy, but in this educational setting, the concept of *nature*, or rather *plants*, was integrated. Four aspects of literacy developing were essential to understand both how students could break the code, make meaning of their understandings, use their understanding and question human-nature relations, and to analyse the outcome of the pedagogical design. These aspects were related to the model in accordance with the following principles:

- Code-breaking: Noticing and discovering the natural environment and its plants.
- Meaning-making: Understanding what we have noticed and discovered in and about the natural environment.
- Use: Being able to use these new understandings.
- Critical analysis: Building on these understandings, being able to question human—nature relationships.

The teachers designed a Storyline with the aim of enabling their pupils to discover plants' fundamental characteristics by meeting with trees in a nearby forest, reading about trees in factual and fi tional literature and looking at trees in films and artworks. One major aim with the Storyline in this study was to create relationships with trees through outdoor pedagogy in the forest, meeting with trees, creating imaginary characters for trees and designing a place for pupils' drawings of trees, e.g. friezes depicting forests. Th s was thought by the teachers to be a starting point for sustainable thinking and acting in the long term. The Storyline included the three school subjects of visual art, Swedish and biology. Dramatization, fantasising, and aesthetic learning processes were intertwined with subject knowledge. Central to this approach is "an open-ended journey of exploration, expression and experience" (Campbell, 2011,in Wilson, 2011). The pupils also grew their own bean-plant in order to learn more about plants and their needs.

Storylines usually include created characters and in this Storyline the characters were not humans or animals: over the weeks, the pupils were slowly turning into trees. Storyline characters are affected by everything that happens to their lives in the fi tional story. When pupils invest time and effort in creating their characters, they are also willing to participate and to fi d out more about the Storyline setting (McNaughton, 2007). In this Storyline, this opens the way for and supports an affective learning which emphasises sensory experiences and emotional connection with nature (see e.g. Gurewitz,

2000). In turn, such experiences are critical in order to engage pupils – and others – in environmental concerns (Cobb, 1997; Mantere, 1992; van Boeckel, 2013). A brief outline of the Storyline topic is presented in Appendix I.

An Action Research Methodology

As mentioned above, this study is conducted through participatory action research, which is a community-based and co-operative research approach (Koshy, Koshy & Waterman, 2011).The work is carried out in collaboration between the researcher and the practitioners (Somekh, 2006) and is generally used for improving conditions and practices. In this sense, the work has an emancipatory intent (Rönnerman, 2004). The concept of action research was introduced by Lewin (1946). Th ee keystones were presented: participation and collaboration, democratic ideals, and a close link between theory and practice. Lewin was influenced by pragmatism, mainly by Pierce and Dewey (Westlander, 2006). Common to all of these approaches is the view that knowledge is developed through action, which could be applied to school children and university students, as well as to researchers.

In action research, the research process normally starts with problem identifi ation based on the question "What is it that needs to be developed or changed?" In this study, the question was formulated as follows: How can we design a teaching and learning situation and environment that will engage the pupils in the life of plants? Then, the action is planned in response to this question. After this, the action starts: in this case, the Storyline was implemented. The action was documented in different ways and the action-research group (researcher/Author One, two teachers and one student teacher) met and discussed the work and planned how to continue. The idea for action research can emerge from both researchers and practitioners, and it can be based on an idea that is being examined, as well as on a specific dilemma. The problem-solving approach is highlighted in action research (Rönnerman, 2004). Action research is therefore prescriptive in nature, where the goal is to develop and improve a practice (Somekh, 2006).

Implementing Process

Together with the teacher team, Author One conducted an action-research project which started one year before the Storyline was implemented. The researcher's role was to be a critical friend through the planning phase and to contribute a theoretical point of view on The Storyline Approach, plant blindness and ecological literacy (see e.g. Stone & Barlow, 2005; de Brito Miranda et al., 2017; Häggström, 2019), through mini-lessons on five occasions. During these meetings we discussed research in the fi ld of ecological literacy, and developed teaching and learning ideas, as described earlier. The teachers planned the pedagogical approach and Author One agreed to participate in planning and implementing the aesthetic parts in the Storyline. Before the Storyline was implemented, a pilot study was conducted[1] with the intention of trying

1 The pilot study is in press.

out how to use key-questions, one of the essential features of a Storyline in the class (Omand, 2017). In addition, the teachers wanted to try out the use of photo-elicitation together with pupils. Photo-elicitation is a visual method that uses photos to elicit people's thoughts, beliefs, opinions and more (Collier, 1987; Richard & Lahman, 2015). The teachers considered photo-elicitation as a suitable method for the intended Storyline since students are likely to be quite experienced in taking photographs, given our era of camera-equipped smartphones, and be accustomed to taking selfies and to publishing photos on social media (Couldry, 2012; Häggström, 2017). The pilot study went quite well, and the teacher team decided to develop the concept in a full-length Storyline the following year, with the intention of connecting art and environment. The assumption was that art as a didactic tool has the power to evoke compassion toward the more-than-human world and to sustain embodied experiences (see e.g. Reiss, 2018; Jónsdóttir, 2017; Häggström, 2017; Curtis, Reid & Reeve, 2014). Th ough artwork, the teachers aimed to facilitate discussions on environmental issues in various ways.

During the implementation of the Storyline, Author One continued to be a mentor to the teacher team, as well as being a participating researcher. Author Two, the student teacher included in the teacher team, had taken part in a one-week-long Storyline during a course on campus and was now given the opportunity to conduct a Storyline himself at a school-based training course with students in Grade 2 (8-9 years) and simultaneously be a vital part of an action-research project.

The Storyline lasted for six weeks, 2–3 days a week and 1–3lessons on each occasion. During aesthetic work the class was divided into two groups. Both authors led these activities together. After the Storyline, 7 semi-structured interviews were conducted. The interviews lasted from 8 to 24 minutes and were video-recorded and then transcribed verbatim.

Analytic Autoethnography

Th s chapter is inspired by *analytic autoethnography*, which refers to "research in which the researcher is (1) a full member in the research group or setting, (2) visible as such a member in published texts, and (3) committed to developing theoretical understandings of broader social phenomena (Anderson, 2006, p. 373). Autoethnography is an exceedingly reflex ve method, allowing the researcher to utilise personal experiences with the purpose of providing academic understanding of societal activities (Grant & Zeeman, 2012). Th s method was chosen since it allows us to use personal refl ctions from our action-research project and to create vignettes that reveal us as researchers to be embodied, culturally engaged and vulnerable (Bochner, 2001; Ellis, Adams & Bochner, 2011; Grant & Zeeman, 2012). Ellis et al. (2011)stress that autoethnographers are aware of the uncountable ways that personal experience may influence the process of research, for example just by making decisions on why, how, where and when to conduct a research project and whom to include. Hence, autoethnography acknowledges subjectivity, sen-

sitivity and the researchers' influence (ibid.)[2]. As a method, autoethnography combines characteristics of *auto*biography and *ethnography*, which implies that the researcher looks back and selectively chooses episodes and experiences from being – as a researcher – part of a culture. In addition, an autoethnographer has to analytically examine these experiences and to use a set of methodological and theoretical tools.

Empirical Data, Analysis and Ethical Concerns

Th s study is informed by three types of data: First, there are fi ld-notes from classroom observation and from forest-lessons. These fi ld-notes provided an overview of the Storyline work and evoke our memories from the lessons. In addition, these data were signifi ant for facilitating the autoethnographic method and producing the vignettes, as they refl ct our own experiences as well as the practice. Second, we used notes from the transcriptions from classroom video recordings, which have been translated from Swedish. Th s data was crucial because of its authenticity and the opportunity to look at the material from different perspectives. Thi dly, we have additional empirical materials such as photos, pupils' texts and artwork, and interviews with pupils, which have been essential for clarifying the pupils' actions and underlying causes. The analysis was guided by the overall aim to reveal the study's participating pupils' actions in relation to the forest they encountered, thus the analysis' fi st step was to observe what the pupils were doing and what kind of actions they started and conducted. The second aim, to study the teacher's role and the teacher's interaction with the pupils, led the second step of the analysis. Subsequent, the analysis focused on the pupils' expressions on the Storyline and their own actions. After this process, each of us refl cted on the material in order to fi d the key actions. From these refl ctions we were able to recollect our emotions and details of our experiences. The vignettes were rewritten and then chosen due to their characteristics and signifi ance, especially with regard to the students' actions and voluntary commitment.

Th s study follows the core ethical principles described by the Ethical Research Involving Children (ERIC) (2013), which includes respect, benefit and justice. ERIC requires critical refl ction, context-specific problem-solving and openness. The participating students and their parents have approved participation and confi med their consent in writing.

The credibility of an autoethnography refers to the narrators' credibility (Ellis et al., 2011).The most obvious aspect here is that the researcher is a full adequate member in the social context under study (Anderson, 2006). As we have been part of the same practice and share experiences, we claim that the described experiences are given "available 'factual evidence'". In addition, the data sources provide evidence that can verify our vignettes. For autoethnographers, validity implies that the study seeks verisimilitude (Ellis et al., 2011).That is to evoke in readers a sense of lifelike experiences that are conceivable, realistic and convincing. Specifi ally, we try to answer to the question:

2 Autoethnography has, however, been criticised for its refusal of traditional analytic aims, e.g. generalisation and abstraction (Atkinson, 2006).

How useful are our vignettes to the Storyline community and teacher education that involves Storyline?

Theoretical Point of Departure

In this chapter, we explore pupils' actions when encountering *disorienting dilemmas*, i.e. experiences that force an individual to change their view of the world in one way or another when the current understanding does not fit or make sense (Mezirow, 2000). Here, we briefly outline the combination of theoretical approaches, starting with affective learning theory as a foundation. Th ough the lens of affective learning theories, drawing on the work of Gurewitz (2000), which is influenced by the work of Cobb (1977), we focus on pupils' reactions and actions concerning the natural environment of a forest close to their school. Affective learning theories stress that sensory experience and emotional connection with nature are crucial, and one hypothesis is that emotional values drive our actions in relation to environmental issues. The signifi ance of the aesthetic qualities of nature is emphasised in both Cobb's and Gurewitz's texts. Gurewitz argues that pupils need to develop an emotional connection with nature before enhancing awareness of environmental issues. The relationship with nature may involve both reason and feelings. Artistic approaches are often described as ways to facilitate affective learning (ibid.). The emphasis in ecological aesthetic education is twofold: fi st on the communicative aspects of art such as, for example, expressing distress about social inequity, or provoking and generating debate through artwork (Curtis, Reid & Ballard, 2012), and secondly, on the importance of contributing vital insight into the human–nature relationship (Curtis, 2009). Together these aspects may play a crucial role in enabling collective change regarding environmental sustainability. Art-based environmental education too has similar aims (Mantere, 1992; van Boeckel, 2013). Place-based interactive and collaborative experiences are essential in this pedagogical approach. Critical thinking and refl ction is also encouraged, as it also is in the theories of critical realism (Olvitt, 2017) and post-human perspectives (Malone, 2018; Taylor & Pacini-Ketchabaw, 2018). Olvitt argues that there is a close link between the individual *moral impulse* and the wider ethical aims in society which foster normative attitudes. Thus, what pupils do and learn at school may have an impact on tomorrow's political decisions. Representatives of a post-human perspective call for a fundamental shift in the understanding of the more-than-human world and our relationships with animals and plants, in particular the human's place in the world (Taylor & Pacini-Ketchabaw, 2018). Such a shift will most likely be a radical shift, which requires transformative learning, which in short means learning after experiencing disorienting dilemmas, self-examination, critical assessment of internalised assumptions and exploring new ways of acting (Cranton, 2016).

Together these approaches call for 1) authentic, personal and sensitive experiences, 2) a sense of belonging, 3) critical self-refl ction including problem-solving and fi ding new ways to act, and 4) re-thinking ethical-moral concerns and humans' impact on and relationships with the more-than-human world.

To interweave the empirical data and the theoretical framework, we draw on these theories and approaches further in the refl ctions on the vignettes below.

Vignettes

Th s section includes five personal autoethnographic vignettes in which the authors explore the experiences of being with the pupils in the forest and in the classroom when working with the Storyline. Each vignette is followed by a critical refl ction, drawing on the theories outlined earlier. Th s way of presenting is inspired by Gallé and Lingard (2010) and Rådesjö (2017). The critical refl ctions allow for interpreting each vignette before proceeding to the following vignette. It gives time and opportunities to consider the meanings of the actions described. The vignettes are a process themselves that "portray an event as if it was presently unraveling in front of the reader" (Rådesjö, 2017).

Vignette One, Author Two: Evolving Reactions

During my internship, I got the opportunity to plan and execute a Storyline together with a teacher at the school. Our project also included working with Margaretha; she participated in planning the project and she also observed and interviewed us during the Storyline. It was an exciting time and a good learning opportunity for me as a student teacher to get practical experience in this area of teaching and in particular to learn about the teaching approach of Storyline.

As noted above, this Storyline focused on plant blindness and giving the pupils more experience and knowledge of the forest. Th s naturally included several visits to the forest. The following section will be about a visit that more or less changed the whole course of the Storyline. On this particular day, I had planned for us to go the forest as I wanted the pupils to have the opportunity to experience the joy of being in the forest milieu. The children played and had a lot of fun together. One group of children found rubbish lying around. They started digging and got really upset about it. "Why did people put this here?" someone asked. Another one responded: "Yeah, that's totally not okay. What about the forest and what about the animals?" The pupils' upset voices and protests about the rubbish drew other pupils' attention. I could tell that this meant a great deal to them and therefore I asked, "Why do you think that people left the rubbish here?". One of them stopped trying to get the rubbish out of the mud, looked me straight in the eyes and said: "Well, it's clear that grown-ups just don't care. End of story". That statement stuck with me and it was one of those moments where, as a teacher, you just take the passenger seat and let the children do what children do best – see things for what they are. I watched them digging up all of this rubbish that others had just thrown away. After some time of this, I heard one of them coming up with slogans, which not so long afterwards turned into collective chants amongst the pupils. With one voice they chanted "Protect the animals, protect the forest, protect Kvarnkullen". It was truly amazing to experience this raw and honest commitment.

Critical Reflection: Encountering Disorienting Dilemmas

Th s vignette illustrates how the pupils encounter a disorienting dilemma: human's destructive interactions with the natural environment of the forest and its impact on the

Img. 1: Garbage in the forest. Photo: Margaretha Häggström.

more-than-human world. It also emphasises not only that children react and have an inherent strength to act, but also the importance of an emphatic and responsive teacher who listens to the pupils and takes them seriously. What is seen here, and as Wals (2015) argues, is that through this Storyline, the pupils were offered meaningful involvement with a natural milieu which in turn elicited their ability to respond to the challenges of a changing environment. The pupils' relationships with nature include both perceptive and emotive aspects of being in the forest and meeting with trees. In addition to the pupils' reactions, this vignette elucidates a (student) teacher's meeting with pupils' authentic reactions while encountering a disorienting dilemma and how he responds to that. Here, he is indeed witnessing his pupils' authentic, personal and sensitive experiences and the starting point of a series of actions driven by emotional values, which Gurewitz (2000) puts forward as one of affective learning's aims. Th s might also be a beginning of transformative learning – perhaps for both the pupils and the teacher.

Vignette Two, Author One: Emerging Ideas

It is day three and the class is divided into two groups: one group is in the forest with their teacher and one group is in the classroom with Linus. The pupils in the classroom are sitting on the fl or, working together on a large painting of the forest. Th ee boys are painting the path that leads to Kvarnkullen. "Look!" one of the boys exclaims, "red, green and black!" A group of four girls are helping each other to create different trees and bushes. The pupils are concentrating on the task. As the picture emerges, they converse with each other about its components and their previous experiences from the forest visit: "Here was where we built a little shelter for small animals", one pupil points to the painting. "Yes, it was a protection against dangerous animals and forest machines", a pupil recalls. "And I found glass and metal". They all start to talk about the rubbish they found the other day. "Now, I want to say the slogan we came up with", a boy states. "Yes", Linus nods, "do that, they were really good – do you remember them?" Linus asks the group. "Save the animals, save nature, save the pla-a-a-net", one girl exclaims. "We should talk to the authorities", one boy says solemnly. "Yes, we should save the animals, give them a better home, and not cut down all the trees, because that is bad". I was quite moved by the seriousness of the situation and the atmosphere amongst the eight-year-old pupils.

Img. 2: Creating a frieze. Photo: Margaretha Häggström.

Critical Reflection: An Art-Based Approach and Affective Learning

In this vignette, the artwork of the frieze is central and the co-operation between pupils is striking. One thing leads to another, both in the activity and in the conversations. As mentioned, artistic pedagogical approaches may facilitate affective learning. The collective work here seems to strengthen a sense of belonging which influences the individual attitude. While actually uttering the slogans, the pupils seem to be struck by the words, which thus become more meaningful to the pupils each time they say and hear the words. Accordingly, this work deepens the pupils' insight into the human–nature relationship, as Curtis et al. (2012) suggest. What we see as evident in this vignette is that the combination of meeting with the forest, processing the experiences of these forest meetings through artistic work and the possibility of talking about these experiences both help the student to develop emotional connections with nature and encourage sensibility towards environmental issues, as Gurewitz stresses (2000). Such an effect is also the aim of art-based environmental education (Mantere, 1992; van Boeckel, 2013).

Vignette Three, Author Two: Preparing for a Demonstration

The experience of watching the pupils becoming aware of how some people treat the forest as a dump was interesting as it was an unplanned event. Several times after that forest visit, I could hear them spontaneously talking about their experience. One day I asked them about it and if anyone wanted to share their thoughts with the whole group. Many of them wanted to share their experiences. They were upset and wanted to make other people, mainly grown-ups, understand that it is not okay to treat nature like that. I asked about their options regarding how they could make their voices and opinions heard to the outside world. I got numerous suggestions: call the media, send videos or demonstrate. After some discussion, they decided on having a demonstration. Their goal was to make grown-ups understand that we have to care for nature and in particular protect their forest, Kvarnkullen. They started to prepare placards. They drew pictures and wrote slogans like: "Protect the animals, protect the forest, protect Kvarnkullen" and "We want oxygen now, or else we will protest". They attached their placards to branches they had found in the woods and started marching around the classroom chanting and protesting. During my observation of this, it became clear to me that our

Img. 3: Preparing for demonstration. Photo: Linus Djurstedt and Margaretha Häggström.

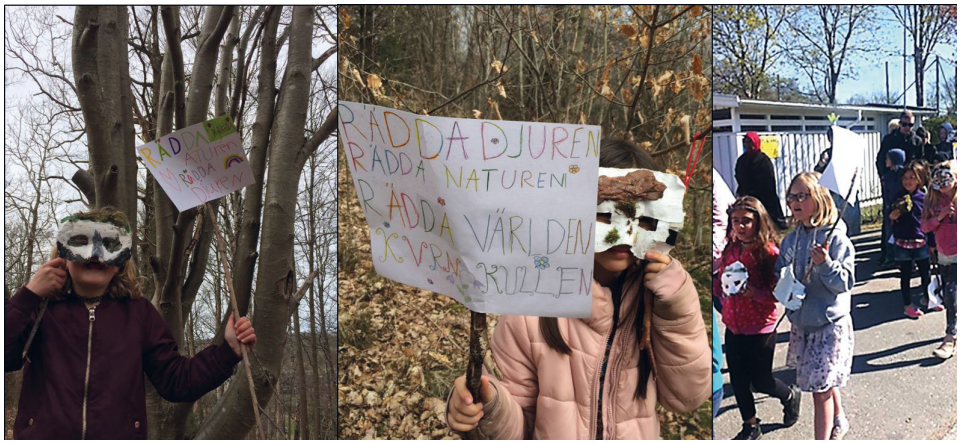
next activity had to be demonstrating in the real world: this was far too genuine not to bring out into the world outside of school.

Critical Reflection: The Teacher's Role in Transformative Learning

In this vignette, the importance of the conscious and empathic pedagogical approach is elucidated. Moreover, the *process* of the learning object is apparent here: pupils are continuously talking about their experiences; they seem to have a need to share the experiences and to take some action. Once again, the (student) teacher is perceptive and accommodating, which might be the reason why the pupils turn to him repeatedly. Th s process can be burdensome and worrying, and the teacher's support is crucial in order to encourage the pupils to refl ct critically, which probably includes introspection as well, a fruitful part of resolving the worries and maybe fi ding new ways to act. Th s is a signifi ant aspect of affective and transformative learning. Although critical thinking is encouraged in The Storyline Approach (Harkness, 2007), it is always the teacher's responsibility to balance the challenges we face in the time of the Anthropocene (Head, 2016; Wals, 2015) with an optimistic view on the future. The pupils can then take part in tomorrow's political resolutions.

Vignette Four, Author Two: Carrying out a Demonstration

It is a windy and rainy day but the pupils are determined to go through with their demonstration. They have put on the masks that they have prepared using materials from the woods and are now standing in a line with the placards in their hands, ready to chant their slogans. And off they go: out through the school gate, past the terraced houses along the road, taking the path to the woods and Kvarnkullen, exclaiming their slogans together. They are very energetic and enthusiastic. And this experience is very powerful; empowered young pupils following their goals with determination is not an ordinary event these days. They have shown that they are ready to take action.



Img. 4: Demonstration. Photo: Margaretha Häggström.

Critical Reflection: Critical Reflections

Th s vignette shows the pupils' eagerness to follow through with their demonstrations. Maybe this action is an example of what Olvitt (2017) claims to be a strong link between one's individual moral impulse and society's extensive ethical aims, shaped by critical refl ctions. Following Olvitt, this demonstration could be a foundation for creating future politicians or dedicated citizens. How can we understand this action by a group of young pupils? Encountering disorienting dilemmas may be one answer to this question. The incentive of such experiences may be more powerful than those we usually come across – or dare to orchestrate – at school. In this case, we would like to stress the importance of empowerment and this action being pupil-centred. The pupils most likely felt that they were in charge of this action, which led to a feeling of emancipation. Their critical assessment of the forest's state of mind due to people's behaviour forced them to explore other ways of acting. For these children, the demonstration may have been the radical shift Cranton (2016) urges, which is based on transformative learning and is opposed to their usual way of acting. Perhaps they also felt relieved afterwards.

Vignette Five, Author Two: A Grand Finale

At the end of the Storyline, we had planned for us to go to the local library to create an exhibition. When that day came, we gathered outside the school. To get to the library, the pupils had to cross through the central parts of the city where the school and library are located. Th s felt like a golden opportunity for them to demonstrate. For the demonstration, the pupils had put on the masks that they had created. In their hands, they carried their placards. They stood outside their school and it was wonderful watching them getting prepared and being excited. Their feeling of doing something important probably deepened due to the local newspaper being on the spot, taking pictures and interviewing. It added a positive feeling to the cause, and probably the pupils felt as though their words meant something. It brought authenticity to the Storyline. We

marched to the library and the pupils chanted their slogan: "Protect the animals, protect the forest, protect Kvarnkullen". It was a perfect ending for a Storyline that moved me as well as the pupils.

Critical Reflection: Empowering Pupils

Th s vignette shed light on the power of acting, being listened to and making a difference. The pupils had created a sense of belonging with each other as well as with the trees in the forest and the rest of the more-than-humans there. They would probably not have reached this state of mind if it had not been for their authentic and sensitive experiences of the forest milieu, the critical refl ction and the opportunity to discuss the disorienting dilemma. In turn, all of this is dependent on the pedagogical approach and a sensitive and compassionate teacher. The pupils have shown that education has to be pupil-centred if we want to empower the pupils.

Reflections in Relation to Plant Blindness and Ecological Literacy

As the aim of the Storyline was to prevent plant blindness and to promote ecological literacy, we would just briefly address a few comments on these concepts in relation to the study's result. The design of this Storyline gave the students an opportunity to discover the intrinsic values of plants, and to familiarise themselves with trees. Th s implied that the students learnt to notice and observe plants' in their authentic environment. The classroom-based education offered in-depth studies on biological facts, which aimed at letting the students learn about plants functions in ecosystems. By letting the students make different artworks in the forest, about the forest and trees, and to use natural material such as leaves, moss, bark and branches, the students were also given opportunities to appreciate the aesthetic values of plants and their natural environment. Hence, this was a way of preventing plan blindness and promoting ecological literacy. Following the model by Freebody and Luke (1990), we consider the Storyline work as an appropriate way to enhance students' ecological literacy; the students were given the prospect of 1) noticing and discovering the natural environment, 2) understanding the natural environment and its plants, 3) being able to use their new understanding, and 4) being able to critically analyse the human–nature relationship. However, this last step was not planned in advanced, but initiated by the students. If the student teacher had not let the students take the lead here, this fourth step might not have happened.

Discussion: Storyline as Engaging and Stimulating Action

Th s study reveals that the participating pupils only had to visit the forest a couple of times in order to re-think humans' impact on the more-than-human world. Direct experiences, collective interaction, engaging all the senses, together with refl ction and critical thinking, are all encouraged by the National Agency for Education (2011).However, it appears to us that these practices usually only take place occasionally and one at a time. Drawing on the theoretical point of departure of this chapter, this study reveals

the importance of combining these practices. By doing this, pupils are allowed to take ownership of the issue. At first, we did not realise the depth of the pupils' engagement, since we did not expect such earnest emotions to be awakened. We anticipated joy and a sense of freedom, but this responsibility and willingness to act we could not have imagined. Afterwards, when discussing the Storyline work, they were very proud of their own actions.

An ethical dilemma when we teach about sustainability issues is that we on the one hand teach about the critical state we have put the planet in which requires action now. On the other hand, there have been criticisms of the use of school education for giving directives on how to live one's life, which per se restrict the democratic intention of education (Wals, 2010). The question is what role education in school may play regarding sustainability in the Anthropocene? Should education not engage students in such a way that they develop awareness and potential to create their own solutions? In the following short discussion, some of our thoughts on the results are highlighted in an autoethnographic manner.

This Storyline was planned with the overarching aim of preventing plant blindness and promoting ecological literacy. But surprisingly to Linus, the method itself would be the core of his deepest reflections: "Looking back on the Storyline, one thing repeatedly comes to my mind: Storyline should be applied more often in school". Margaretha: "Can you explain why that is?" Linus: "In the light of transformative learning, I can see a variety of prospects arise. Firstly, it gives the pupils genuine opportunities to deepen their knowledge, based on their commitment. Secondly, their interest is fuelled by their feelings, which allows for developing a deeper learning situation". As we have observed, Storyline allows students to learn *through* nature and environment instead of learning *about*. "In order for that kind of learning to arise, I find one aspect to be crucial: time", Linus states. A standard lesson of 40–60 minutes is not enough time for the students to both encounter disorienting dilemmas and get the opportunity to figure out how to respond to them. Here, we discover a shift from traditional teaching methods into transformative learning, in this case through a Storyline, which includes things other than subject content, such as critical thinking, commitment and even identity formation. This conclusion is acknowledged by Mezirow (2000) and Illeris (2014), who state that transformative learning should be viewed as an approach that is suitable for education regarding topics such as climate change. A transformative learning method like Storyline provides what we consider to be a key factor when tackling these kinds of topics – time: time to get engaged and time to do something with that engagement.

This takes us to a second reflection. We live in a time when we repeatedly hear that the children of this world feel frightened when thinking about the future and climate change. They receive the information, but do we provide them with sufficient tools to tackle their fear and to get them motivated to make changes for the future? Do our school activities give them enough time to become engaged and reflect upon their options? As stated by UNICEF (2007), teachers must include environmental topics in education as well as giving the children a greater voice on climate-change issues. We need to have the courage to acknowledge our pupils' fears, but also to trust our pupils' ability to come up with solutions. However, as pointed out above, the time aspect should be

taken into account. Without suffici t time, it seems reasonable to expect that some of the pupils would become quite afraid. It has been said that fear needs to be met with knowledge, and in order to develop and nurture knowledge, time will be needed. As the UN (2015) states, our education needs to be adjusted to the problems we are facing in our society, which Head (2016) explains will be a serious and emotional challenge. As we have seen during this study, the Storyline work has been a possible and positive approach to learning about the more-than-human world and when being confronted with disorienting dilemmas. When experiencing disoriented dilemmas, it is our fi m belief that it is crucial not to ignore the pupils' feelings. Instead, their feelings and thoughts need to be heard and met with an educational method that provides pupils with enough time to consider and refl ct. In other words: time for knowledge to grow deeper, just like the roots of the trees that the children in this study were so eager to protect.

Implications for Education and Pedagogical Approaches and Suggestions for Research

While working with this chapter we became aware of several implications for education. As educators, we need to put more emphasis on the methods we choose and link them (cautiously) to learning goals. Different methods provide different opportunities and disadvantages. Th s is not a ground-breaking conclusion, but it is important to shed light on the potency of certain methods. We should ask ourselves what kind of learning we aim to orchestrate, and also consider what kind of learning a method does *not* provide. A thorough assessment should therefore be carried out before implementing our educational plans. Th s study reveals how Storyline gave the pupils a chance to react and act according to the environmental issues. Maybe this could be applied to education regarding society in general?

We suggest that further research should focus on teaching methods and what kind of learning possibilities different methods provides. Th s derives from the fact that Storyline proved to be a suitable method for engaging and motivating the pupils and helping them to feel confide t in their abilities to make a change. Accordingly, we would like to propose further research on Storyline when teaching about other content, for example social injustices like racism and gender inequality.

Conclusion

Following the call for an educational shift, regarding issues of sustainability (Jickling et al., 2018; Taylor & Pacini-Ketchabaw, 2018; Lindgren & Öhman, 2018), this chapter has elucidated a Storyline that developed in such a direction. Th s specific Storyline's progress was enabled because of the teacher's willingness to leave to his pupils to take the lead, and to allow unplanned events. Th ough this study we have learnt that teachers' flex bility and open-mindedness are two of Storyline's greatest advantages and strengths, not the least with regard to pupils' agency and empowerment. By permitting pupils taking the lead, we were able to understand what they think about what is hap-

pening to the natural environment, their future, and what actions they were able to enforce and bring about. Letting the pupils encountering disorienting dilemmas was one way of starting a process, which led to action.

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Appendix I: The Storyline Topic Outline (brief version)

Storyline Feature	Key Questions	Pupil Activity	Class Organisation	Materials	Outcome
Trees	What is a tree?	Evaluation exercise with follow-up questions.	Whole class.	Video camera.	Reflections and discussions.
	Which is your favourite tree?	Pupils walk to the forest to pick a favourite tree, take a selfie together with the tree, and video record a short presentation about the tree.	Half class, individual work.	Tablet	Photograph and video film.
	What kind of tree did you pick?	Each pupil draws and colours in a picture of their tree and writes a short presentation.	Half class, individual work.	Drawing paper, pencils and crayons.	Picture representing the tree, functional writing: giving information about an individual tree.
The 'home' of the trees	What does a forest look like?	Half the class creates a 2D class frieze.	Half class.	Crayons and watercolours, paintbrushes, sponges, frieze paper.	Frieze, representing a forest where the trees live.
	What might happen to trees?	Pupils listening to a story from Norse mythology without an ending. Each pupil creates an ending to the story.	Whole class, individual work.	Paper and pencils.	Imaginative writing.
The needs of a tree	What do trees and other plants need?	Class discusses plants' needs together. Class looks at an information movie and creates individual image-texts about a plant's life cycle.	Whole class. Individual work in whole class	White-board. Hand out paper, pencils.	Reflections, discussions. Informative functional image-text.
	Where do plants come from?	Each pupil is given a bean to plant.	Individual work in whole class.	Beans, planting soil, cups, water, scaffolding stick.	Plants
Incidents	What might happen with us now, having been exposed to a magic powder?	Class discusses possible happenings. Each pupil creates a mask with natural materials from the forest to decorate it with.	Whole class. Individual work in groups.	Flip chart. Casting tape, wallpaper paste, material from the forest e.g. leaves, moss, cones, bark etc.	Discussions. Masks for transforming (into trees).
	What can we do about littering in the forest?	Group discuss what they want to do after finding glass, litter and metal in the forest. Creating slogans and placards.	Groupwork in half class.		Discussion and designing placards for demonstrating. Protest march and oral expressions.
Special event	What special event would bring our Storyline to a satisfying conclusion?	Agreement on having an exhibition at the local library and marching together, chanting slogans.	Whole class.	Nail and hammer, tape, signs.	Presenting all the work created through the Storyline weeks.
Review	What did we learn?	Conducting the evaluation exercise with follow-up questions.	Whole class.	Paper and pens.	Functional writing, reflective evaluation.

Chapter 10

Using The Storyline Approach to Integrate Cognition and Emotion in Second Language Education

Sharon Ahlquist

Abstract. At Kristianstad University, Sweden, student teachers of lower and upper primary take part in an intensive three-week course in The Storyline Approach as part of their education in the teaching of English. The aims are: 1) For student teachers to experience the approach as learners; 2) For them to refl ct as teachers on different aspects of the work as they do it; 3) To develop their own English by using it in speaking and writing tasks; 4) To understand the theories which underpin this teaching approach, including those related to second language learning; 5) To be able to create and plan their own topic based on the requirements of the national curriculum. Th s chapter is based on the fi dings of my ongoing research into The Storyline Approach in second language teacher education. The data consists of my observation fi ld notes and students' own written self-reporting.

Keywords: Student teachers, second language education, willingness to communicate, cognition, emotion.

Introduction

In Sweden, all student teachers of both lower and upper primary school (ages 7–9 and 10–12respectively) must study English. For those with happy memories of school English, or those who use English in their spare time, the subject is something to which they look forward: a chance to refresh their knowledge of grammar, become more comfortable speaking English and not least, learn how to work with it in the young learner classroom. However, for too many students, the subject was a chore at school, with an over-reliance on textbooks/workbooks, vocabulary tests on words they never otherwise used, and little use of the spoken language.

Though varied teaching methods and materials are more likely to increase the learners' interest, it is the view of Earl Stevick, one of the most influential applied linguists of the twentieth century, that even more important for learning is what goes on within and between people (Stevick, 1980). For some student teachers, the school experience was miserable, with use of the spoken language characterised by fear of public correction by the teacher and mockery from classmates when mistakes were made, leading to reluctance to speak. Research highlights that a learner's willingness to communicate (WTC) in a second language, defi ed as a state in which learners actively seek and make

use of opportunities to speak (MacIntyre, Clément, Dörnyei & Noels, 1998; Reinders & Wattano, 2015), is impacted by factors such as classroom environment, teacher and task (Pawlak & Mystkowska-Wiertelak, 2015; Zhang, Beckmann & Beckmann, 2018). This is significant since within a sociocultural research perspective, both emotion and cognition play an important role in learning another language (for example, Swain, 2013).

If student teachers are to become enthusiastic and creative teachers of English, then negative attitudes must be transformed, by building self-confidence in their own use of English, and by equipping them with skills they can apply in their future classrooms. This is the dual purpose of the intensive course in The Storyline Approach (TSA), which student teachers of both lower and upper primary take as part of their education in English at Kristianstad University. The course is the subject of this chapter, which aims to demonstrate how cognition and emotion are integrated to enhance learning. The topic of the course – *Our Sustainable Street* – is based on one which I have used in a study conducted with children aged 11–13 (Ahlquist, 2013a). In that study, findings included that the children showed less anxiety about speaking English over time and were therefore more willing to do so; they learnt new words, wrote longer and more complex texts, and improved their ability to understand when the teachers spoke only English. In other words, working with TSA in English has both affective and cognitive benefits, which student teachers will be better equipped to understand if they experience working with the approach themselves.

While TSA in second language education has featured in books such as Falkenberg and Håkonsson (2000), and Mitchell and McNaughton, (2016), as well as in academic articles, such as Ahlquist (2013b), these works examine the benefits and drawbacks of the approach for classroom learning, but not within the context of teacher education. The purpose of the chapter is to shed some light on this topic based on three research questions: 1) how do the students themselves evaluate their development as learners/users of English? 2) how do the students themselves evaluate their development as future teachers? and 3) how do the students evaluate the effectiveness of cooperative group work?

I will first provide an outline of the course and its participants, followed by a consideration of how the research was conducted, and place it within the research context of second language learning, before going on to discuss the findings and the implications of these findings.

The Course and Participants

The classes consist of approximately 30 students in their second term of teacher education. The majority are in their early twenties, with different levels of ability in English and varied life experiences.

For the two weeks of the course, which was introduced at the time of the most recent teacher education reform in 2011,the students are randomly divided into five or six groups. The working language, as for all our courses in English, is English. In the initial information about the course, the students are asked to set themselves an achievable goal, to which they should refer when they evaluate their learning; to consider over the

two-week period how they are developing as student teachers; as learners of English; how cooperatively their group is working; their own contribution to the group work; and how the group could have worked more effectively. In the introductory seminar, the students are introduced to the principles of cooperative learning: individual accountability; collective responsibility; face to face interaction and small group social skills (for a recent overview of cooperative learning, see Ferguson-Patrick and Jolliffe, 2018). They are told that at the end of the course, they will be asked to review their learning in writing. Th s is partly an exercise in metacognition, but they are also told that their questionnaires will form part of my ongoing research into the use of TSA in teacher education. Thus, the method for my research study is that the students individually set a personal goal; are asked to refl ct on their learning and group cooperation from the start to the end of the Storyline work; and to evaluate this in writing (in either English or Swedish) at the end. Sometimes time is made for the written evaluation in the fi al seminar; sometimes the students write at home and hand it in in the last seminar. The students are free to write their names, or not.

Regarding assessment, the students are assessed at the end of the course in two ways. The fi st is as a group. Each group is given a school subject (maths, physical education etc) and asked to create another Key Question for our Storyline that could include this subject. Individually, they write a plan of a Storyline which they themselves could work with over a number of weeks in the respective age groups, linked to the curriculum (Skolverket, 2011) and to the theories of how children learn another language.

The story and key questions

The student teachers take on the roles of residents of a street in a fi tive town. The groups each create a family or group of people living together; write advertisements for their house and draw pictures of it. During the Storyline, the families take part in a project to live in a more environmentally-friendly way; deal with the problems of rubbish being dumped in their new street; and encounter some anti-social neighbours. Finally, they enter the Ideal Street Competition. During the course, the students meet teaching staff from art, music and educational drama, as well as myself in English. The Key Questions and some of the tasks are as follows:

1. *Who are you?* The students create families; make models of their characters; and introduce them to the class. They write about the character and his/her typical day.
2. *Where do you live?* Each group writes an estate agent's advertisement for the house which they have bought, and draw it. They agree on the family's favourite room and create a model of this to be shown to the class.
3. *How can you help the climate?* The families take part in a project to live in a more environmentally-friendly way. They watch a short video about climate change, then look back over their descriptions of a typical day to identify changes they could make to reduce their carbon footprint.
4. *What can we do about the problem of rubbish in our street?* The families petition the council to create a park on waste land adjoining their street, which has become a

dumping ground. Other tasks include designing the new park, writing a newspaper article about the rubbish problem and creating a radio phone-in programme – both the latter tasks include the street's residents as interviewees.

5. *How can we deal with the problem of the new neighbours?* The families interview the new neighbours and discuss the problems that have arisen (such as noise, unkept garden, and barking dog). Th s is based on a text they read about the problems; it demonstrates the drama technique of teacher-in-role (as the neighbour) and creates an opportunity for role play using the models of the characters.
6. *What makes our street ideal?* The different families create entries for the Ideal Street Competition. These are songs about the street, which are performed against a slide show of photographs or video which each group creates, using the frieze, the models or images from the internet.

To summarise, the tasks are designed both to develop the story, and also to demonstrate the variety of ways in which the national syllabus for English can be integrated into TSA. Further, the tasks also provide opportunities for the students to develop their own language skills and knowledge in English.

Learning about, Learning through

In this section, I will discuss the pedagogical issues which are taken up during the course, related to learning in general and the learning of English in particular.

Differentiation

The concept of *inclusion* is important within the Swedish national curriculum. In practice, this tends to mean that teachers provide support for those who need it. However, the academically stronger are often left to get by on their own, just because they can. In a sense, such pupils are excluded from the classroom. If we are to work with inclusion in practice as well as in theory, then we have to be able to differentiate between the challenges we can reasonably give our pupils, based on their individual knowledge and abilities. Th s is demonstrated during our Storyline course. For example, to introduce Key Question 2, I read the students directions on how to fi d their street in the town. Before we begin, they are told that there are individual and group stages to the task. First, they will work on their own, and in the fi al stage, as a group. The instruction is to listen and after they have heard the description twice, they have some time to draw or write down as much as they remember. They then listen again, and after listening, add detail to their existing sketch or notes. Finally, the group combine their knowledge.

In an easier version, pupils could be given a list of words they will hear – petrol station, bank etc – and number them as they listen. Then they turn their attention to a printed map and listen again, marking on the things that were mentioned in the list in the order that they hear them and are now able to check again. The task can be made simpler still by having, say, squares, already marked on the map. Our pupils fi st number the things on the list as before and then as they listen again, write the appropriate

number in each square on the map. In this way we can use the same listening comprehension – because this is what it is in language teaching terms – while challenging our pupils at an appropriate level.

Th s series of tasks based on the same listening input demonstrates differentiation in level. However, it is also an opportunity to consider different learning styles. For instance, some students draw a map when they try to recall what they have heard; others make notes. Highlighting this difference encourages the students to refl ct on the kinds of techniques they use to support, or scaffold, their own learning. At the same time, it makes them aware of other techniques, as used in this instance by their classmates, which in turn may broaden their own repertoire (Holton & Clark, 2006). To further address learning styles, we can consider other ways in which the task can be approached – for instance, tactile learners might place markers on a map; kinesthetic learners might walk the route using small figu es or their fi gers.

The Use of Questions

A further general pedagogic point concerns the use of questions. When the characters are introduced, this is an opportunity to discuss the way in which a doll/puppet scaffolds the speaking task, taking the spotlight off the speaker. But it is also a chance to consider how a learner is affected by hearing a question before or after they are presented with information. For instance, when the groups prepare to introduce themselves, they prepare a question based on the content of their presentation, such as the job of a particular family member. When they do their presentations, some groups are asked to state their question before they begin to speak, and others to state it when the group have completed their introduction.

We work in a different way when the groups show their room model to the class and explain why it is the family's favourite room. Th s time, the audience are encouraged to ask questions. We discuss how the presenting group is no longer in control but must answer spontaneously and improvise. Both production and interaction are part of the syllabus for English, and they make different linguistic demands on the speaker, which the students experience in these two tasks.

Reading and Writing

While the location task and the two presentations described above can be seen as listening comprehension, we also consider how reading comprehension is an integral part of Storyline work since many developments are introduced in the form of a letter. Key Question 3, for example, begins with the arrival of a letter about the climate project, inviting the families to a meeting at the town hall. The arrival of letters also provides a chance to demonstrate the cooperative learning principle of shared resources, when learners do not each have their own copy of material. It is the group's responsibility to make sure that everyone knows what they need to know. We discuss what the groups did when the letter arrived. Some individuals read the letter and passed it on. We talk about what is likely to happen when the letter reaches a learner who does not read very

well and consider alternatives to passing it on. One is to do what some groups choose to do anyway, and that is one person reads it aloud to the others.

Reading comprehension can also be based on writing which the learners themselves have produced. For instance, the families watch part of a very short film about climate change, and then read their account of the character's typical day (written in Key Question 1), to identify changes they could make. If the changes are mentioned in the latter part of the film, which they now watch, then the family will be eligible for a prize. One issue which is raised here is how work which learners produce in one part of the Storyline – the account of a typical day – becomes the basis for further tasks, so making it more meaningful.

Multimodality

A further point of discussion concerns how multimodality can be included in TSA. The Ideal Street Competition requires the students to write a poem, rap or song about their street and to create a slide show of pictures. On the day, most perform using recorded music as backing, while others make use of their ability to play a musical instrument. There are no winners as the neighbours are competing on behalf of the street. We discuss how competitions should be handled in the young learner classroom, and the need for clear guidelines and criteria if winners are to be chosen. A discussion of this fi al task leads us into the way in which Storyline makes the most of learners' various talents; provides an opportunity to look back at the story, integrating characters and incidents into the song or rap; and importantly to show that this is yet another way of recycling the core vocabulary of the Storyline.

For our fi al seminar, the groups have preparation time to consider the role of the Key Questions and frieze, the integration of the aesthetic subjects, and the benefits and challenges of TSA as they have experienced them, before we meet to bring their conclusions up for general discussion.

Storyline and Traditional Lessons

While most student teachers take an active part in the Storyline work, there are those who feel uncomfortable with the aesthetic work, particularly drama and music. Th s is important to acknowledge since teachers are individuals, just as pupils are, and will enjoy different things. At the same time, it is vital that the student teachers understand that not everyone learns in the same way, and that the aesthetic subjects, as well as being valuable in their own right, also provide the tools which can make learning visible for many learners. The aesthetic subjects may also be the ones where the less academic have a chance to shine and use their talents to help their group. Such chances are few in traditional English lessons.

Further, it is important that the student teachers understand that the exercises and tasks that we do in non- Storyline situations can be incorporated into the story framework. In other words, there is no need to distinguish between TSA on the one hand, and traditional English lessons on the other. For instance, we can create a Storyline

around the content of a textbook chapter about a farm, a family, a school and so on. In addition, we follow the same lesson structure with a warm up, body and closure to our lesson, and we can assign homework based on what we have worked with. As well as using our textbook as inspiration for a topic, we can include the kinds of activities we might otherwise work with. For example, the student teachers are given words from the Storyline and asked to sort them into four groups, each of which have something in common, such as houses, people, and climate. Th s kind of exercise is popular in workbooks.

From Practice to Theory

Having experienced how learners learn through TSA, and having considered the pedagogical implications of the tasks we have worked with and the exercises they have done, the students are better able to understand the theory of social constructivism and theories related to second language learning.

When they work in groups, at different levels of language proficie cy and possessing varying degrees of artistic and musical talent, the students understand Vygotsky's (1978) zone of proximal development – how peers can bring different skills and knowledge to a task and learn through the help they give and accept. The concept of scaffolding is central to social constructivism (Wood, Bruner & Ross, 1976), but with regard to peer scaffolding it can be problematic. We discuss how opportunities for learners to benefit from each other's skills and knowledge are based on two assumptions. One is that the learners are willing to give and receive help, which is both a personality variable and dependent on the relationships between group members. A second point to consider is that unless the task is inherently engaging, the learners will not make their best effort and the teacher will not see what they are fully capable of.

Th s discussion places the notion of task at the centre of teaching. With regard to second language teaching, Lynne Cameron (2001) makes the point that teachers can both provide opportunities for learning, but also limit them, by the tasks they create. In the spoken language, the task design determines who speaks, how much and about what. It gives practice in production or in interaction; it causes the learner to consider the audience and the situation, which are criteria to be graded from school year 6 (age 12) and onwards. Whether we work with TSA or not, these are considerations for planning our work in the language classroom.

In terms of second language teaching, TSA can be considered a task-based approach (TBLT). Though defin tions vary, in TBLT is based on tasks which draw on skills that would be used in similar tasks in real life and there is a concrete outcome or product (for instance, Ellis, 2003). Where TSA differs from TBLT, is that there is a narrative framework for the tasks. Th s makes them meaningful in the context of the story. The pieces of writing or artefacts about which learners talk, as well as the work displayed on the frieze, serve important functions: they help to develop the story and also provide a record of what has been done. Not least, when learners' artefacts and writing are used throughout TSA, they can see that their work serves a purpose, which is motivating – the character's typical day, written in Key Question 1 and revisited in Key Question 3, as

described earlier, for instance. Equally, the learners could read each other's accounts in order to identify areas of possible change. Both versions of this task are directly related to the syllabus for English: one competence to develop in reading is that the learner is able to act on information they have read. The action to be taken here is to identify lifestyle changes in the context of the competition requirements.

Building on completed work can be satisfying for learners partly because it reinforces the sense of character and story. For learners of all ages, these are what makes TSA "fun", along with working together with others. That fun is an emotion commonly associated with TSA is highly signifi ant for second language teaching. Although the research focus in second language acquisition has historically been on cognition, this is changing. Indeed, the understanding by some researchers of the importance of emotions can be traced back almost forty years. Stephen Krashen (1982) identifi d the importance of feelings – affect – in language learning. He used the term *affective filter* to explain how emotions influence an individual's ability to learn: when a learner is relaxed and motivated, the filter is low and learning occurs, but when the learner is nervous or bored, the filter is high and learning is blocked.

Since the 1990s, increasing attention has been paid to the impact of the social and affective context in which learning occurs. Based on Vygotsky (1978), the sociocultural approach to the learning of a second language considers that language use and language learning go hand in hand. In other words, learners learn the language as they use it, and it is when they use it that they learn. The work of researchers such as Firth and Wagner (2007), and Lantolf (2000), for example, has highlighted the importance of context.

The inseparability of cognition and emotion can be clearly seen in the research into WTC. Researchers argue that WTC is dynamic, and that it can change within the course of a lesson, dependent on task and on classmates. In TSA, there is content in the story, the tasks are meaningful and contribute to the development of the story. The nature of the work fosters relationships both within the groups and within the class as they collaborate. Storyline as an approach thus provides conditions to support the development of WTC, which is a pre-requisite for actual production of the spoken language.

Analysis of Students' Reflective Evaluations

The experience of working with TSA makes an impact on students in different ways and it varies from individual to individual. They develop an understanding of how the approach works in practice and how it can contribute to learning. One way in which it contributes to learning is through the emotional experience, which is often revealed in the students' refl ctions, examples of which are provided below.

In itself, the act of refl cting can play an important part in an individual's continued learning, providing a chance to take stock of what has been achieved, and to identify one's future goal or goals. As Harvey, Baumann and Fredericks (2019) make clear, refl ction is not only a cognitive process, but very much an affective one: emotions can work as a catalyst for refl ction, at the same time as refl ction can activate emotion. While the authors maintain that "the role and functions of the affective domain in higher education remains relatively unstudied" (2019, p2), the potential influence of affect

on refl ction becomes apparent when we consider, for instance, how the effectiveness, or otherwise, of group work is likely to colour an individual's view of the entire learning experience. Th s is especially important to remember with regard to TSA, where the same groups work closely together for the period of the Storyline, and evaluations may provide deeper insights into a student's perceptions of their learning than might be the case in a more traditional course.

The questionnaires are subjected to content analysis based on the questions that were asked and coded accordingly. These are to do with development as a user/learner of English; as a teacher; how cooperatively the group worked; what they could have done differently; and the individual's contribution. Key words are identifi d; for example, in the extract below, words *confidence*, *dare*, *afraid*, *character*, and the phrase linking *fun* and *learning* in the mind of the writer are signifi ant. These words also illustrate the way in which the cognitive and affective domains of refl ction are intertwined.

Certain themes emerge from the data. One is that students often write that they have learnt as much about teaching in general as about teaching English, and that they have learnt more from this course about teaching than they have learnt in the more general pedagogy courses. These general courses are taught in lecture form. A common theme over the years concerns the enjoyment of working with TSA – the fun – and the way that that impacts on their courage in speaking English and their willingness to do so.

> *I think Storyline is fun and when it's fun it is a chance to learn. Since we started, I feel I have more confidence to speak in front of others. Previously I have not dared to talk to others because I have been afraid of saying wrong, but it became much easier when I had the character in front of me.*

Th s highlights the role of the puppet, mentioned previously, and also the realisation that fun and learning are closely connected. In the quotation shown below, another student highlights an important aspect of speaking a foreign language.

> *I am not normally the one who says something during the lessons and to do it in English is even harder, I thought. But I was actually wrong. In some ways it did feel more comfortable speaking English due to the fact that everybody knew that not everything had to be said in the right way.*

All too often, students have the attitude that if they are going to say something, it has to be correct. Th s may be attributed to what they have experienced at school or it might be a personal characteristic. Such an attitude can prevent a person from speaking, and if they do not speak, they are not going to improve their skill in the spoken language. As teachers of young learners, they need to understand that while the youngest children may be uninhibited about speaking English, this changes as they approach puberty, or even earlier. It is therefore important that learners are encouraged to speak, regardless of how accurate it is. One way to do this is to give them a reason to talk – where they have something they want to say and need to express in English. A diet of textbook exercises and 'talk to your partner about' tasks will not fulfil that function, and where

translation exercises predominate, then this only underlines the fact that there is a right and a wrong.

That references to the use of the spoken language are so common serves to emphasise not only how students are often inhibited in speaking English, but also how working with TSA, even for a short period of two weeks, can make a difference. Here is one last quotation on this subject, which underlines the dual aspects of process and progress, and the way in which emotions can change from negative to positive as the learner becomes aware of progress. We have the juxtaposition of *terrifying* and *enjoyable*, the variety of task type as a reason given for language development, and we can note, the reference to *confidence* once again.

> *At first it felt a bit terrifying to have to speak and write only in English, but as the days went by, it felt easier and easier. By doing all the different tasks in the Storyline, I feel like I have practised so many different ways to use the language. Really enjoyable to feel the progress in my language skills and the increasing confidence.*

My next quotation is interesting because it deals with group work, which is so central to TSA.

> *I've noticed how you take on a different role when you work in a different group. One of my base group members is doing more in her Storyline group than she does in the base group.*

As mentioned at the beginning of the chapter, the students are randomly grouped for the course in TSA. Normally, they would work in a self-selected base group, created at the start of their first term, usually on the basis of where they live, and which they use for group study. By the second term, some groups are working well, but others less so, which is not surprising, considering they did not know each other when they formed the group. Group work is the source of many student complaints, usually because some members do not take their share of the work, or that others dominate. However, this quotation illustrates very well the fact that learners take on a certain role in a certain group. This may be a positive or negative role. If they find themselves in a different group constellation, they may display different characteristics: someone who does little in one group may be proactive in another, as in this example. It could be because the work is motivating; that the student prefers the people in the new group; that there is room in the new group for the individual to be proactive in a way that was not possible in the usual group; or that no one else was proactive so this person felt they had to do it. The important point for student teachers to realise is that their pupils need to work in various group constellations in order to be able to display and develop different facets of their personality, as well as their skills and knowledge in the respective subjects.

When it comes to evaluating how well their group worked, students usually write that the group worked well together, though one or more members may have done less than others or displayed a negative attitude. The students are usually able to identify ways in which they personally contributed to the group – often by making suggestions or taking responsibility for a particular part of a task. In some cases, the students write

that the group worked cooperatively, with each member taking responsibility for the fi al group effort. Not surprisingly, members of such groups are the most satisfi d with the course.

My fi al quotation underlines the value of refl ctions such as these both for the teacher/researcher and the student. As teachers we gain insights not only into what our students think they have learnt, but also how and why; for the student, the being part of something, coupled with awareness of language development, is motivational for their future studies and also delivers an important pedagogical message about the nature of TSA, which can never be adequately conveyed through lectures and reading alone.

I felt a part of something, which I never have before. I felt I could make a difference

Conclusion

During the two courses that the students take in English, we also work with grammar and phonetics, literature, creative writing and developing speaking skills in various ways. Regarding the teaching of English, we deal with the theory of how young learners learn and how we can relate this to classroom practice in ways which are meaningful and motivating. As well as TSA, this includes using children's literature in the language classroom, where the students themselves work on tasks that can be adapted to the young learner classroom. Th oughout their courses in didactics, a common thread is that they are learning through and not just about different approaches, methods and techniques.

A criticism by the schools' inspectorate has been that English as used by learners outside the classroom is separate from what is taught at school, despite a curriculum requirement to work with pupils' interests and experiences. Classroom teaching is still highly reliant on published materials. Yet if schools are to equip pupils with English, which is considered a basic skill for the twenty-fi st century, then teachers need a wider repertoire and the self-confide ce to use it. Our student teachers experience for themselves the benefits and the challenges of TSA. In addition, the upper primary teachers have a four-week teaching practice in which they design and work with TSA in their pupils' English lessons.

Almost forty years ago Stevick argued that more important than materials and methods, is what goes on within and between people. To me, this means that a fundamental requirement for learning is an atmosphere in which learners are relaxed with themselves and each other. Stevick later defi ed "what goes on" as the "presence or absence of harmony" (1980, p.5). Any Storyline teacher observing their class at work will understand what Stevick means and how this state of harmony is related to learning. By both being able to experience TSA from the inside as learners and assess its pedagogical potential as teachers, student teachers are equipped to create Storyline topics which will maximise the learning opportunities of all their future learners.

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Chapter 11

Storyline and Motivation
An Action Research Case Study

Peter J. Mitchell

Abstract. Condensed from an action research case study carried out by the author, the chapter seeks to explore the impact of the Storyline method on learner motivation. Using a case study of a group of university students majoring in foreign languages, empirical data were obtained on participants' satisfaction with teaching, motivation to learn English in class, and satisfaction with their progress in English during teaching and learning via the Storyline method. The fi dings show that the learners experienced an increase in both extrinsic and intrinsic motivation. Moreover, they developed into autonomous learners; by taking control of their learning, an atmosphere of collaboration emerged that allowed the participants to progress in their learning with minimal teacher intervention. The author concludes that Storyline has a positive impact on learners' motivation and that Storyline ought to be included in the curriculum for trainee teachers and employed on a greater scale in the classroom.

Keywords: Motivation; action research; case study; language learning

Introduction

Th s chapter is condensed from an action research case study carried out by the author and focuses on the aspect of learner motivation when working with the Storyline method in the university foreign language classroom. Motivation is a key factor in language learning and is recognised as promoting effective acquisition (Dörnyei, 1998, 2001; Rivers, 2007). The chapter aims to explore the link between Storyline and learner motivation and, thereby, to the answer the question of what impact Storyline has on learner motivation. The chapter also seeks to recommend action research case studies as a methodology particularly appropriate to teachers researching their own professional practice. Although motivation in learning has been investigated by a great number of researchers working in a multitude of contexts, the issue of learner motivation in Storyline remains under-researched. Th s chapter examines Storyline in the light of existing research on learner motivation, through the lens of an action research case study on language teaching at a university.

Storyline and motivation

Creswell (1997) links motivation in Storyline to its being learner-oriented and oriented to developing learner autonomy. Both of these are viewed as a prerequisite to modern

language education by a wide range of authors (Bell, 1995; Cameron, 2001; Rivers, 2007). Furthermore, motivation and autonomy are viewed as having a mutual relationship (Ushioda, 2007, 2011). Deci & Flaste (1995, p. 2) propose that learners are autonomous when they are 'fully willing to do what they are doing, and they embrace the activity with a sense of interest and commitment.' Learner autonomy may be described thus:

> [T]he product of an interactive process in which the teacher gradually enlarges the scope of her learners' autonomy by gradually allowing them more control of the process and content of their learning (Little, 2007, p. 26).

This fits what Kocher (1999, p. 17) calls 'structured freedom'. It could be argued that this 'structured freedom' makes Storyline even closer to real life, in that in our own lives we exercise our own decisions, but within certain contexts which we do not and cannot control; circumstances beyond our control can impact upon the outcomes of our decisions. This is summed up by Lewis & Vialleton (2011, p 218):

> In language learning, many aspects of the situation are beyond the immediate control of learner or teacher. The inability to control them does not make either less autonomous (…) Autonomy, both in learning and in life, is just as much about how one reflects on and deals with what one cannot control, as about the – rather strange – desire to control whatever one can.

In Storyline, learners do retain much more autonomy than many other methods allow. The role of the teacher is similar to that in other learner-oriented approaches in that he/she serves as a facilitator rather than instructor/provider of knowledge (Dörnyei, 2001). This requires the learners to think more and rely on their own resources, enabling them to become independent learners who 'learn how to learn' and who are capable of solving problems.

Deci & Ryan (1985, p. 3) state that, 'The study of motivation is the exploration of the energisation and direction of behaviour.' Motivation may be extrinsic or intrinsic (Ryan & Deci, 2000; Deci & Ryan, 2007; Schunk, Pintrich & Meece, 2008). Intrinsic motivation refers to doing something because it is inherently interesting or enjoyable, whereas extrinsic motivation refers to doing something because it leads to a separable outcome (Deci & Ryan, 2000, p. 55). Students' ownership of their learning in Storyline has been noted by many Storyline researchers to impact positively upon students' intrinsic motivation (Ehlers et al., 2006; Creswell, 2007; Hofmann, 2007; Mitchell-Barrett, 2010). By creating their own characters learners are able to internalise feelings and emotions, and in doing so 'feel a strong sense of ownership' (Harkness, 2007, p. 20). Indeed, 'the learners, the creators, become those people' (Bell, 2000, p. 4). In taking on such roles, their feelings of involvement and ownership might be expected to result in an increase in their motivation (Ehlers et al., 2006; Kocher, 2007; Mitchell-Barrett, 2010; Ahlquist, 2011). Creswell (2007, p. 91) writes that 'a good story draws us into its spell as we predict what is coming, and we anticipate its unfolding with joy and excitement'. He continues by noting that Storyline's *Principle of Anticipation* ensures that learning never stops because the learners feel part of the process and do not stop thinking about the story,

which 'provides an atmosphere that is conducive to motivated, active learning' (ibid.). In studies on Storyline in the secondary and young adult classrooms, indeed, increased learner engagement reflecting enhanced motivation is a common theme (see, for example, Larsson, 2003; Hugosson, 2005; Ahlquist, 2011). Krenicky-Albert (2004, p. 32) emphasises:

> …whereas many methodologies result in one single product, Storyline is stronger product-oriented with respect to nearly all activities of the learning process, from the design of place and people… to the preparation of a final event.

Since Storyline involves the creation of many 'products' the principle of ownership of these products is enhanced, which results in higher motivation for all the learners involved. Although it is true that levels of motivation may vary between individuals doing the same task and also for an individual over time (Schunk et al., 2008), in Storyline motivation which arises from engagement in one task may carry the learner into the next (Van den Branden, 2006; Ahlquist, 2011).

In Storyline, it is the learners themselves, rather than the teacher, who want to set high standards when presenting their products in class; they want to impress the audience with good and correct products so they feel '*intrinsically motivated* to work hard' (Kocher, 2007, p. 122)(italics in original). Storyline also encourages mutual respect and learners 'feel a very real and positive partnership with the teacher who plays a significant role as the director and designer of the story' (Bell, 2006, p. 58). This could have a positive impact on foreign language classrooms where the teaching and learning process has been hampered by teacher-centred methods or issues of hierarchy. In discussing Storyline and motivation, Ahlquist (2011, p 50) writes:

> What contributes to increased motivation seems to be the opportunity to work more independently, both individually and in groups, use skills other than reading and writing, and to be involved… [Although research has shown] some older learners to be resistant to practical work, many responded positively, one reason perhaps being that such work has a function in the Storyline.

When activities are meaningful, motivation is enhanced (Bell, 2000; Ehlers et al., 2006; Kocher, 2007). Storyline's emphasis on authentic communication and fluency, as opposed to artificial dialogues and accuracy, has a positive impact on motivation. When students communicate with each other and realise that they are understood, they are 'motivated to participate in communication' (Kocher, 2007, p. 123). Greater motivation ought in turn to have a positive impact on learning, and a method such as Storyline might be expected to result in greater fluency and better communication skills. The need to investigate this rigorously led to the action research case study described in this chapter.

Research design

Action research can be viewed as a self-reflective cycle, which can be summarised as: 1) plan, 2) act, 3) observe, and 4) reflect, leading back to a new cycle (Kemmis, 1997). This

self-refl ctive cycle is aimed at solving a given problem. The main purpose of action research is 'to improve practice – either one's own practice or the effectiveness of an institution' (Koshy, 2010, p. 9).

Many action researchers favour case study research since case studies concentrate on what is unique (Wallace, 1998). Action research frequently uses case studies, which are a powerful means of capturing real data which can serve as a basis for action (Koshy, 2010). The case study is a research strategy with an empirical inquiry that investigates a contemporary phenomenon within its real life context (Yin, 2013). Case studies can allow us to penetrate situations in ways that are not always susceptible to numerical analysis (Cohen et al., 2011). The benefits of carrying out case studies are that they enable us to explore the 'how' and the 'why' of events, being both exploratory and descriptive (Yin, 2013).

In undertaking this study I had to be mindful of the fact that I was in a dual role as both teacher and researcher. Though teacher-researchers can use their close proximity to the research as an advantage (Hammersley, 1993), an insider researcher such as a 'practitioner-researcher' essentially 'inhabits the hyphen' (Drake & Heath, 2011,p. 25) and must safeguard against losing sense of sight of oneself in the context of perceptions by other actors (Humphrey, 2007, p. 23). Similarly to Mitchell-Barrett (2010, p. 75), it was important for me that the participants 'felt comfortable during the research process and that they had a positive experience', so it was an advantage that the research was conducted during their normal lesson times, in a setting which they found familiar.

Although difficulties may arise in practitioner research if there are confli ts between roles as a researcher and as a practitioner (Gorman, 2007), the purpose behind the research was to fi d the most effective way to teach my students and help them to learn, while ensuring they were motivated. Furthermore, being both a teacher and a researcher may be seen as advantageous in that, in practitioner research, 'it is through a merging of these functions that the person develops their unique and applicable perspective on their research project' (Drake & Heath, 2011, p 32).

As a practitioner-researcher, examining fi st and foremost my own practice and that of my students, my research for the purposes of this study was limited in scope, focused on a group of my students. The study was conducted over a four-week period, thereby covering the whole of the teaching of one topic in the curriculum. The key issue for investigation was learner motivation during teaching and learning using The Storyline Approach. The research took place at my own timetabled classes, twice a week, with the given group at the Faculty of Foreign Languages, Tomsk State University. The group was made up of seven 4th year students, all male, aged between 20–21 years, of mixed ability in terms of English according to the Common European Reference for Languages (CEFR) scale (Council of Europe, 2011).In cases where the wider population is 30 or fewer, such as in a group of students, it is recommended to include the whole of the wider population as the sample (Krejcie & Morgan, 1970), thus ensuring that the sample better represents the features of the wider population (Cohen et al., 2011,p. 145). I therefore anticipated that all the members of the given group would form the study sample, although of course I recognised the possibility that some of the students from the group may be excluded from the study on the basis of poor attendance, for example

due to illness, or due to a lack of desire to participate in the study. As it turned out, all seven students elected to participate in the study. Attendance was 100%, which is not unusual in my professional practice.

Institutional ethics approval was obtained in advance. Prior to the study commencing, I informed the group of intended participants about the nature of the research – the trying out of a new method in order to examine its appropriateness and research its effect on the teaching and learning process. I ensured that all students were aware that they could elect not to participate in the study without any consequences and, furthermore, if they chose to participate, they could withdraw from the study at any time prior to the end of data collection without prejudice to their studies. Each student completed a participant consent form; as it turned out, all the students elected to participate in the study and none chose to withdraw.

Prior to the study's commencement, I asked the students to complete pre-study questionnaires rating their perceived ability in language skills and providing information on what they like and do not like about their English classes. The information provided by the students enabled me to identify which problematic areas in teaching and learning could be tackled using Storyline, which allowed me to refi e the approach used over the given period. During the study I employed participant observation, keeping a teacher's diary to record what happened during classes in terms of student reception and participation, which also enabled refi ement of the approach. The students kept journals throughout the study, making entries after each class on what they liked and did not like, and their thoughts on language skills. At the end of each week I collected the journals and read the students' entries over the weekend. Upon completion of the study I asked the students to complete post-study questionnaires rating their perceived ability in language skills and providing information on what they liked and did not like about their English classes taught using The Storyline Approach. I also conducted interviews and a focus group with the students to obtain richer data on issues such as motivation of students and their personal perception of Storyline and their progress in English during the study. In the course of the study, therefore, data was obtained regarding the impact of Storyline on learners' satisfaction and motivation.

The empirical data consisted of pre- and post-study questionnaires, student journals, the teacher's diary, interviews and the focus group. To gain understanding of the data obtained in the course of the study, interpretive analysis was employed in the manner proposed in Hatch (2002, p. 181),making use of the various data collection methods used. Firstly, the data were read in order to get a sense of the whole. Impressions previously recorded during the study in the teacher's diary were reviewed, along with data from the questionnaire responses and the student journals. The data were then coded where interpretations were supported or challenged, prior to being clarifi d with the participants at the interview stage. The data from the interviews were then reread and coded before being clarifi d again in the focus group. Finally, excerpts supporting the interpretations were identifi d and referred to in the write-up. Interpretation should be linked to research purposes and therefore the data are presented according to research question for convenience (Cohen et al., 2011, p 552).

It is coding that 'leads you from the data to the idea' (Richards & Morse, 2007, p. 137). Th s research being a study of student response, the codes were 'positive response', 'negative response'. Subcodes, in turn, were more specific observations related to the codes (Saldaña, 2013, p. 12). For example, a subcode might be 'enjoyment' by a learner of an activity, which would be coded as a positive response. The interviews and focus group provided opportunities to consult the participants, termed 'member checking', as recommended by Efron & Ravid (2013, p. 71), in order to check the trustworthiness of my interpretations (Ezzy, 2002; Saldaña, 2013).

Findings

Questionnaires

The questionnaires generated data representing changes in the students' satisfaction and motivation over the course of the Storyline topic. All seven participants completed the pre- and post-Storyline questionnaires, which allowed an analysis to be made of each student's response to Storyline. The fi st three questions in the questionnaires concerned participants' satisfaction with teaching, motivation to learn English in class, and satisfaction with their progress in English. Th s enabled a comparison to be made of the participants' perception of the previous teaching approach and Storyline as an approach in foreign language teaching. The fi dings from the students' answers to the questions are set out below.

In the pre-Storyline questionnaire, four of the students neither agreed nor disagreed that they were motivated to study English in class, and three agreed that they were motivated. In the post-Storyline questionnaire two students agreed that they were motivated to study English in class, and five students stated that they strongly agreed that they were motivated. Th s represents an increase in motivation for all the participants.

The above data suggest a positive student response to Storyline as a foreign language teaching method. A comparison of the answers relating to the questions on student satisfaction and motivation asked in the pre- and post-Storyline questionnaires (calculated as a group mean) is provided in Figure 1.

Teacher's Diary

The teacher's diary supports to a great extent, and so helps to confi m, what the participants wrote in their questionnaires and student journals, and what subsequently emerged during the interviews and focus group. The data from the teacher's diary on the student response to Storyline as a foreign language teaching method are presented chronologically, as a narrative, in order to provide an overview of how the student response developed over the course of the study.

The Storyline itself began with a mixture of interest and apprehension on the part of the group; the interest being due to the new format of learning, and the apprehension for the same reason. The students quickly adjusted to the new approach, although art work received a mixed response. The key questions generated a lively discussion in

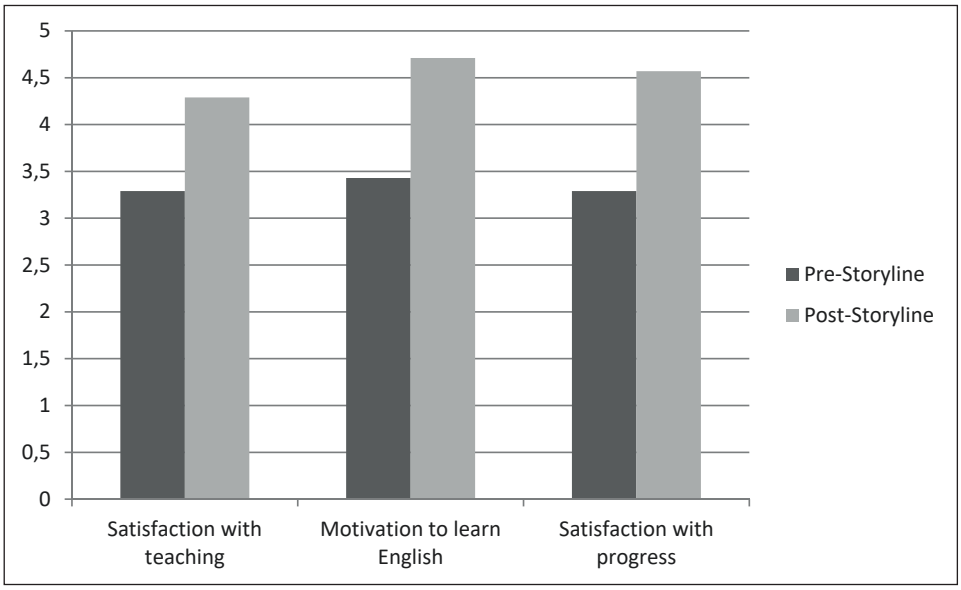

Fig. 1: A comparison of students' satisfaction and motivation pre- and post-Storyline (five-point Likert scale)

English, in which all the students participated although in the fi st classes two learners, both extremely proficie t, spoke more than the others and another two learners, both less proficie t, began to involve themselves actively only after my encouragement.

Towards the end of the Storyline, conversation in class began to turn towards the students' opinion of the new teaching approach. The seventh – penultimate – class seemed to be almost a disappointment for the students as they realised that we were approaching the end of the Storyline topic. Four learners asked almost simultaneously if we could 'do another Storyline'. Upon asking the group if they would like to do so, all the students answered in the affirmative. In discussing what they had learned, the participants spoke at length on vocabulary and speaking skills. When I listed new knowledge and practised skills, such as grammar and writing skills, the students almost seemed surprised, as they realised that they had learned many new things without even noticing. Th s feeling was summed up by Learner 1 who said, *'It was fun and we didn't think that it was learning.*' The discussion on what the students had enjoyed and not enjoyed was heavily slanted towards the positive rather than the negative, possibly because they were still caught up in the enthusiasm of the latest classes. When given the opportunity to refl ct – in their journals, interviews and the focus group – they were able to do so more deliberately. The students all seemed to be looking forward to the fi al Storyline class: the celebration or 'leaving party'.

The eighth and fi al class provided another opportunity for the students to refl ct on what they had learned and share their thoughts with each other. All the participants spoke positively about their learning experience and enthusiastically demonstrated their newly gained knowledge. Several times during the class, the students stated that they would like to use Storyline again in the teaching and learning process and vari-

ously told me and our guest that Storyline was fun, interesting and effective, and *'better than our other classes'*. The time seemed to pass very quickly and involved so much speaking by the participants that at the class's conclusion half the snacks and the cake were untouched and were, therefore, divided up among the students and taken home for later consumption. The teacher's diary, therefore, indicates a positive student response to Storyline as a foreign language teaching approach.

Student Journals

The student journals provided the perspectives of the other participants in the study, and therefore provided relevant data to help answer all of the research questions. Each student made an entry in his journal after each Storyline class, without exception, which boded well for the study. As it turned out, though, some students were more forthcoming than others in terms of what they wrote and the detail of their thoughts. Indeed, some students commented on some aspects of what they had done, but not on others. Overall, however, the journal entries support my own observations in the teacher's diary regarding the students' responses to Storyline, yet also reveal what was not necessarily visible to me: the students' own thoughts and feelings on what they were doing.

Writing on their feelings about classes, common words used repeatedly are *'fun'*, *'interesting'*, *'useful'* and *'effective'*. Learner 1, for example, wrote the following about the fi st class: *'The class was fun and interesting. I liked it.'* Many students wrote that they liked learning English using Storyline, such as Learner 2 after the fi h class: *'It's good to learn English in such way!'* which is supported also by Learner 7 writing after the sixth class: *'I didn't know I could learn English in the fun way.'* There is also evidence of intrinsic motivation: *'Before Storyline I studied hard… but Storyline is good because now learning English is more interesting and fun way to study'* (Learner 7 after the eighth class). Overall, therefore, the student journals indicate a positive student response to Storyline as a foreign language teaching method.

Interviews

The interviews, which took place shortly after the Storyline topic, provided an additional opportunity to understand the students' perspectives. Equally importantly, they were useful for checking and confi ming that I correctly understood the participants' responses to Storyline.

There was a consensus among the students that they felt ambivalent about the teaching and learning process prior to Storyline, with no particularly strong feelings either way, characterised by such comments as *'OK'* (Learners 1 and 4) and *'not bad'* (Learner 5). When discussing the teaching and learning process during Storyline, however, the students were much more positive. All the learners described Storyline as *'interesting'*. Learner 2 related how it was *'very interesting to think about what we'll do in the next class.'* Learner 3 said it was a *'completely new'* way of learning for him and *'I thought it was cool'*. All the participants reported increased motivation. When asked why they

thought they had become more motivated, the students' answers were similar. Learner 1 noted that he felt *'more involved in the learning process'*. Learners 5 and 6 said that they felt close to their characters and the story they invented. Learner 4 spoke about how he learned real-life things that he could use immediately, in terms of both language and information.

Speaking about which teaching method they preferred, all the participants chose Storyline. Learner 1 said that this was because he thought Storyline was *'interesting and innovative'*. Learner 2 stated that Storyline was *'more interesting'* than previous classes, which was true for the other students as well. Learner 7 said that Storyline was *'brand new'* after classes that were too routine. Learner 7, when I asked him about his level of satisfaction – in the questionnaires he reported the same level of satisfaction – replied that he was happy with the teaching and learning process both before and during Storyline, as he felt he had progressed well in both, but added that he found Storyline more interesting and motivating. When asked if they would prefer to continue using Storyline or not, all the participants answered in the affirmative. To sum up, the interviews show a positive student response to Storyline.

Focus Group

The focus group provided yet another opportunity to confi m previous fi dings and explore the students' perspectives on Storyline. After discussing the fi dings from the pre- and post-Storyline questionnaires the participants were unanimous in their preference for Storyline as opposed to the methods earlier employed in the teaching and learning process. The students all agreed that the previous teaching methods were too routine and not particularly interesting. Common opinions were that Storyline as an approach to teaching was much more interesting and flex ble, allowing students to be creative and be more involved in their learning, while using their imagination. They had looked forward to each class and were motivated to work harder.

Towards the end of the focus group, I asked the participants whether or not they would like to continue working with Storyline in the future. The group was unanimous in answering affirmatively. Finally, I asked the participants if they would like to add anything else, at which point the students reiterated their desire to continue working with Storyline in future classes. On this positive note, the focus group session concluded. The focus group thereby confi med the positive student response to Storyline as a foreign language teaching method.

Discussion

The fi dings show an increase in learner motivation, which all the students agreed had improved thanks to Storyline. As discussed previously, motivation may be divided into two basic types: '*intrinsic motivation*, which refers to doing something because it is inherently interesting or enjoyable, and *extrinsic motivation*, which refers to doing something because it leads to a separable outcome' (Deci & Ryan, 2000, p. 55) (italics in original). As for intrinsic motivation, *'fun'*, *'interesting'*, *'useful'* and *'effective'* were

common responses for many of the students; what Rivers (2007, p. 1) calls a 'fresh and lively approach… basic to effective language experiences'. Motivation in Storyline is also said to come from increased student ownership of learning, due to opportunities for student creativity and control of the learning process (Creswell, 1997; Kocher, 2007). In language learning, greater attention is now being paid to the relationship between autonomy and motivation (Benson, 2006). Intrinsic motivation may be positively impacted upon through a 'sense of personal autonomy' (Deci & Flaste, 1995, p. 30). Th s sense of personal autonomy was refl cted in student responses to Storyline, such as Learner 1's interview comments that he felt *'more involved in the learning process'*. Additionally, several of the students reported that they enjoyed *'creating'*, be it stories, characters or solutions to problems. It is interesting to note the comments contrasting Storyline and the previous teaching approach by Learner 7, written in his journal after the eighth class: *'Before Storyline I studied hard… but Storyline is good because now learning English is more interesting and fun way to study'*. Comments such as these suggest that while the opportunity for employment provides a stimulus for extrinsic motivation, irrespective of teaching method, Storyline as an approach had a positive impact on students' intrinsic motivation.

Gardner (1985) conceives motivation in language learning as subsuming three components, namely, motivational intensity (effort), desire to learn the language (want/will) and an attitude towards the act of learning the language (task-enjoyment). Student motivation was closely connected to the participants' sense of ownership. Learner ownership is fundamental to Storyline and mandates the students themselves taking responsibility for their learning, which is aided through the use of imagination and taking on another's role (Hofmann, 2007). Th s was accomplished and enjoyed by the students. Kocher (2007) notes, too, that in Storyline students are motivated to work hard and set high standards for themselves in order to impress the audience with their skills. The increased effort was accompanied by refl ctive learning coming from the learners' own initiative, which is an important tenet of Storyline (Falkenberg, 2007, p. 52) and had an impact on learner motivation. The students described Storyline as interesting and related that they looked forward to each class and wondered what would happen as part of the topic; this resulted in greater efforts regarding preparation and higher motivation, indicating that they displayed the task-enjoyment described in Dörnyei (1998). Moreover, motivation arising from engagement in a task carried the students into the next (Van den Branden, 2006; Ahlquist, 2011).No less important for student motivation was their perception that they were engaged in meaningful activity (Creswell, 1997; Kocher, 2007), learning useful things, as identifi d by Hofmann (2007) and Larsen-Freeman and Anderson (2011).

The students adjusted to Storyline very well, as seen from their responses and continued engagement throughout the Storyline topic. There emerged intrinsic motivation, from the way tasks were presented (Dörnyei, 2001), in addition to the already-existing extrinsic motivation of studying hard in order to graduate. They developed into autonomous learners; by taking control of their learning, within the framework provided by me as the teacher, an atmosphere of collaboration emerged that allowed the participants to progress in their learning with minimal teacher intervention. As described by

Bell (2006), the partnership between teacher and learners was very real and positive. Issues of hierarchy arose only in limited cases when it was necessary for me to intervene in order to, for example, ensure the timely completion of tasks and the moving forward of learning. Otherwise, divergences in learner interaction and teacher expectation, as per Seedhouse (1997), did not occur. Not only did the roles of the students change, but also my role as teacher changed. As mentioned earlier in the discussion of Storyline as a method, Bell (2000, p. 3) talks about the 'paradox… that the teacher has planned for almost every activity in which the learners will engage but the students feel that they have ownership of the story'. Th s did not, however, lead to teacher domination, a specific concern of Legenhausen (1998), but created an atmosphere of 'structured freedom' Kocher (1999, p. 17). Indeed, teachers must respect and accept the learners' decisions (Bell, 2006). It might be said that the students gained ownership of their learning, whereas I 'retained ownership' of the teaching. Instead of being a figu e of control, my role became that of facilitator of the educational process, as described in Kocher (2007). Th s role is aptly defi ed in Harmer (2007, p. 108), who writes that a facilitator is:

> '[O]ne who is democratic rather than autocratic, and one who fosters learner autonomy through the use of groupwork and pairwork and by acting as more of a resource than a transmitter of knowledge.

The role of the teacher as an organiser of the educational process and facilitator of learning, as envisaged in Storyline (Creswell, 1997; Harkness, 2007), led to a true sense of collaboration as we worked together for the purposes of a common goal – to advance the students' progress in English. Indeed, throughout the Storyline topic the students and I worked in an atmosphere of mutual liking and respect (Rivers, 2007) that proved particularly conducive to the effectiveness of the teaching and learning process. I observed that my intervention as regards issues of classroom management (students not working or not paying attention) was required no more often than previously. The students themselves seemed to appreciate my role as an adviser (*'you helped us to teach ourselves'* – Learner 4, interview) and I noticed that they asked more questions in order to fi d out information. Dörnyei (1998) discusses the importance of learner autonomy to motivation. In the course of the Storyline topic I acquired greater understanding of how much the students themselves could achieve when given ownership of their learning and came to appreciate how powerful this was as a motivator in foreign language learning (Ehlers et al., 2006; Kocher, 2007; Ahlquist, 2011).Chan (2013) notes the important role of the teacher in promoting interactional authenticity in the foreign language classroom, which cannot be achieved via a textbook. The students favourably contrasted the changing role of the teacher before and during Storyline (*'Before, the textbook guided us. In Storyline, the teacher guides us to be more flexible'* – Learner 1, focus group).

The students' clear preference for Storyline as opposed to the previous teaching methods was due to various factors such as increased satisfaction with the teaching during Storyline, greater motivation to learn English using Storyline, and higher satisfaction with progress in the course of Storyline. Satisfaction with the teaching and learning process itself seems to be closely connected with student autonomy and own-

ership of learning (Deci & Flaste, 1995; Dörnyei, 1998; Ushioda, 2007, 2011) and also with the students' perception of what they are learning as being useful and meaningful (Letschert, 2006; Hofmann, 2007, Ahlquist, 2011). The study's finding of enhanced learner motivation supports the findings of doctoral research by Mitchell-Barrett (2010) and Ahlquist (2011), and demonstrates Storyline's capacity to motivate language learners at the tertiary level of education.

Conclusions

Motivation, as stated previously, is a key factor in language learning and is recognised as promoting effective acquisition (Dörnyei, 1998, 2001; Rivers, 2007). The creating of characters, Storyline's defining feature (Harkness, 2007), allowed the students to internalise their feelings and emotions, resulting in a deeper and more meaningful learning experience as the students became the characters that they had created (Bell, 2000). It was this involvement of students in their learning, combined with giving them ownership of the learning process in terms of creating and developing the Storyline, that raised motivation and improved the effectiveness of learning (Kocher, 2007). Student creativity and ownership of learning is fundamental to Storyline (Bell, 2000). Hofmann (2007, p. 74), discussing this, writes:

> It has been suggested this potential comes from the coupling of imagination and multiple perspectives with the 'facts': from inviting the [learners] to study the phenomena at hand from the perspectives of their characters, to take their own perspective on these phenomena, and even 'step inside' and 'live through' them.

The importance of Storyline's *Principle of Ownership* (Creswell, 1997) is highlighted by the student comments on motivation, for example, that their motivation was due to increased ownership of their learning in terms of creativity and control of the learning process. Hofmann (2007) asserts that learner ownership of learning is enhanced through engagement in meaningful activities. The participants found that the structure of their learning was useful and meaningful, as provided for in Storyline's *Principle of Story* (Creswell, 1997; Kocher, 2007). There was evidence throughout the Storyline of reflective learning, sparked by the learners' own curiosity (Falkenberg, 2007, p. 52). The key questions employed in each Storyline episode (Creswell, 1997; Harkness, 2007) generated lively discussion among the students, which was important for language skills, and also made effective use of Storyline's *Principle of Structure before Activity*, which enabled future learning to be focused on what the students needed to cover. The research tasks, watching of the documentary film and reading of the short story – all connected to Storyline's *Principle of Context* – were found to be useful in allowing the students to build on their pre-existing concepts as per the *Principle of Structure before Activity*, before expanding upon their knowledge and implementing new knowledge in practice. Storyline's *Principle of the Teacher's Rope* was found to influence the effectiveness of the teaching and learning process, for example, in determining the amount of time to be spent on certain activities and the detail of instructions to be given in

advance. The *Principle of Anticipation* maintained the students' interest throughout Storyline, which also impacted on student motivation and the observed effort that they put into their work.

During the Storyline topic, instead of (only) completing tasks, the students created their own characters, took on their roles and approached the tasks 'in character', which increased their feelings of involvement (Bell, 2000), enhanced the motivating nature of the tasks (Dörnyei, 2001) and made the tasks more authentic and meaningful (Larsen-Freeman & Anderson, 2011) and the language more real for them (Widdowson, 1998).

The episodes and key questions, important parts of the planning format (Harkness, 2007), provided the necessary structure and context for the learning, building on the students' existing knowledge and developing it. Having taken on their characters' roles, the students engage in role-playing and problem-solving tasks, which were found to be particularly popular features of Storyline because they were fun ('*I really enjoyed talking about incidents and solving them*' – Learner 6, journal), authentic and viewed as meaningful and relevant to real life ('*I can see myself doing these things and solving these problems in my future profession*' – Learner 1, focus group). The incidents central to any Storyline topic allowed the students to use and further develop their knowledge (Creswell, 2007), including their language skills. The class organisation allowed for effective, collaborative work and provided opportunities for reflective thinking and support for less proficient learners (Foster & Ohta, 2005; Ahlquist, 2011). The conclusion to the Storyline topic, in terms of both the review and the celebration, did indeed provide opportunities to reflect on what was learned and accomplished, and whether the pedagogic outcomes were met (Willis, 1996). All this supports the view that Storyline has a positive impact on learners' motivation and that Storyline ought to be included in the curriculum for trainee teachers and employed on a greater scale in the classroom.

In such a small-scale study one must be cautious about making any generalisations based on such a small number of participants. The absence of a control group forces us to rely exclusively on the responses of one group of students and the observations of their teacher. In addition, the study involved descriptive statistics from the pre- and post-Storyline questionnaires supporting the qualitative data obtained (Stringer, 2008). Such data in such a small sample must be viewed with particular caution. This is, however, somewhat mitigated by the employment of triangulation in the data collection process and by providing opportunities via the interviews and focus groups for the participants to validate the findings by confirming that they were correctly understood and interpreted (Burns, 2010; Yin, 2013; Stringer, 2014).

Being a participant observer, I can make no claims to being objective, although I have made every attempt to be so to the extent possible in such a context by, for example, taking steps to ensure that no student felt coerced into responding in any particular way during the data collection and, indeed, throughout the Storyline topic. It is possible, of course, that my students wanted – even subconsciously – to please their teacher by providing answers they thought I wanted. Given the very direct responses received, however, this might be considered unlikely. The fact that they remained very engaged throughout the Storyline topic supports this. It is also possible that the very fact of

trying a new teaching approach may have affected their responses (see the 'Hawthorne effect' in Cohen et al., 2011,p. 314). It ought to be noted, though, that the participants' responses seemed to become more positive as the Storyline topic continued and that they were reluctant to see it come to an end. Ultimately, the students were provided throughout with ownership of their learning and multiple opportunities to voice their perspectives, thereby enhancing the study's trustworthiness (Efron & Ravid, 2013).

In acknowledging the limitations of the study, I make no attempt to generalise the findings to other contexts; I accept that all contexts are unique in their own ways. I state that the findings of the study and any conclusions which may be drawn are applicable only to the specific context of my research. Discussing generalisability, Cohen et al. (2011,p. 186) maintain that, '[I]t is possible to assess the typicality of a situation – the participants and settings, to identify possible comparison groups, and to indicate how data might translate into different settings and cultures.' In this sense, further research on using Storyline in foreign language teaching in a variety of contexts may allow generalisations to be made.

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Chapter 12

Making Sense of Sustainable Development

Marit Storhaug and Siv Eie

Abstract. In this chapter, we share results on student teachers' experiences as participants in a Storyline on sustainable living. The aims of this Storyline project were twofold: fi stly, to enhance the participants' understanding of sustainable development, and secondly to explore ways of practice-oriented teaching at campus. Enacting teaching in academic subject-matter studies provides opportunities for connecting theory and practice and to make ideas and visions for good teaching more explicit. We found that the students expressed that this project gave them opportunities to be creative and to collaborate on "real life-challenges". The students also pointed to the value of taking the role as pupils and that their own project experiences gave them an increased awareness of how to engage school children in topics related to sustainable development. The fi dings of this study indicate that The Storyline Approach has the potential to promote key features of Education for Sustainable Development. Furthermore, a Storyline project is composed of several core practices of good teaching. Thereby Storyline projects may offer the initial teachers experiences with an alternative to the traditional way of teaching and provide opportunities to refl ct on different ways of teaching.

Keywords: Education for Sustainable Development, teacher education, practice orientation, storyline

Introduction

It is widely held that education is central to efforts to promote sustainable development for the needs of both people and the planet. Within the UN, extensive cooperation has taken place to provide policy makers with advice, tools and strategies, to facilitate education for sustainable development at all levels in the education systems. UNESCO, the UN Educational Scientific and Cultural Organisation, calls for a reorientation of education towards developing knowledge, skills, values and behaviours required for sustainable development. The overall objective is to foster active citizens who stand in solidarity and engage in refl ctive and co-operative learning to seek solutions to promote sustainable futures.

Initial teacher education plays a key role in the shift towards sustainability and is seen as a 'critical area' for action, as stated by an expert group set up by the United Nations Economic Commission for Europe to make recommendations to policymakers for Education for Sustainable Development (ESD) (UNECE, 2012, p.10). In a strategy document, 'Learning for the Future' (2011)the group outlined a framework for professional development to enable educators to develop and practice ESD. A main feature of the framework is transformative approaches to teaching and learning: "a transfor-

mative pedagogy that draws on the experience of learners and creates opportunities for participation and for the development of creativity, innovation, and the capacity to imagine alternative ways of living"(UNECE, 2012, p. 16-17). Therefore, a reorientation of teacher education towards ESD is not just a matter of curriculum content or the attitudes and perceptions associated with teaching and learning, but also a matter of how teacher educators actually teach and involve the student teachers in learning processes.

A persistent challenge in teacher education is to make the visions of good teaching practice apparent. For teacher-educators, this implies that we must give more thought to the planning of teaching. To paraphrase the Canadian teacher-educator and educational researcher, Tom Russell, "teacher-educators should think long and hard about how they teach and the messages conveyed by how we teach" (Russell, 1997, p.44).

In this chapter, we present a study of a Storyline on sustainable development designed to model teaching for student-teachers in coursework on campus. The objectives of the teaching were dual. It is about both the student's acquisition of academic content related to sustainable development and about the Storyline as an approach to education for sustainable development. The following questions guide the discussion in this chapter:

How to facilitate Storyline in campus coursework to make sense of sustainable development and education for sustainable development? What significance do the Storyline experiences have for the students' acquisition of knowledge of ESD as they perceive it themselves?

The Need for a Reorientation of Teaching Practice

Trends of Teaching in Norwegian Schools

According to an extensive survey conducted by researchers at the Institute of Welfare Research in Norway, most Norwegian youngsters appreciate their time in school, but a lot of them also feel bored in the classroom (Bakken, 2019). Data from almost 260 000 students from eighth to thirteenth grade, revealed that 70% of the students fi d school boring (ibid, p. 31).The research emphasises that these fi dings reveal a negative trend over the last seven years. The research data do not shed light on possible causes for this change, but at the very least provide reasons to assume that school content does not appear to be relevant to students, as put forward by the research leader in this fi ld, Bakken (ibid. 2019). We do not know much about the reasons for this; however, a comprehensive evaluation study of the previous Norwegian curriculum reveals a few features of the current teaching practice that can possibly explain why the students feel bored in school. The evaluation study conducted over three years from 2009 to 2012 and it included 400 Norwegian school classes, grades 1–13 and three different subjects; social science, science and Norwegian. The research fi dings, based on classroom observations, revealed that teaching practices were characterised by instruction and direct teaching methods and students' activities were related to facts and concepts. In their fi al report, the researchers made the following conclusions: …*besides a few honourable*

exceptions, there were few examples that permitted pupils to wonder about something, alone or together with their teacher or classmates (Hodgson, Rønning, & Tomlinson, 2012, p 188).

For the last 15 years, the Norwegian primary and secondary school has undergone major reforms, with new forms of management based on accountability and measurements. According to Imsen and Ramberg (2014), during the reform years, a shift in ideological orientations may have taken place among Norwegian teachers. They compared findings from two extensive national teacher-surveys that were administered over a period of 10 years, from 2002 to 2012. Their findings indicate that teachers' pedagogical orientations have undergone a change from a more progressive, student-centred view of teaching towards a more traditional view on learning and teaching and transmission of knowledge from teachers to students (Imsen & Ramberg, 2014).

These findings indicate the need to explore new ways of teaching in order to make the curricular content relevant and meaningful for learners. A study of Storyline in coursework in teacher education, conducted by Karlsen, Lockhart-Pedersen, and Bjørnstad stated that Storyline is a rewarding alternative approach to teaching and learning in teacher education. However, they called for further research on how this approach can prepare teachers for the demands of twenty-first century (2019, p. 157).

Teaching for Sustainable Futures

UNESCO defines ESD in the following manner: "Education for Sustainable Development empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity" (UNESCO, 2020). The definition is vague, and the use of general terms is paving the way for a multitude of interpretations. Although it is a good principle for all research to be reflective and critical towards these global policy agendas, we acknowledge that the overall aim of ESD seeks to empower individuals to become political subjects who do not passively observe what is happening in society but are able to act, intervene, and ask critical questions.

There are no fixed knowledge, solutions, or correct ways of behaving within the field of sustainability as the science educators and researchers, Mogensen and Schnack (2010) emphasise in their often-quoted article related to ESD. However, ESD literature reveals a few common features. Stevenson, Wals, Dillon, and Brody (2013, p. 2) provide a summary of five characteristics of ESD. Firstly, this education deals with normative and value-laden questions. Secondly, the relationship among people, society, and nature is interdisciplinary and, consequently, the education must be interdisciplinary. Thirdly, sustainable education goes beyond formal institutional settings and utilises informal public learning arenas. Fourthly, sustainable education must visualise both local and global dimensions. Fifthly, this education is not merely concerned with knowledge and understanding, attitudes, and values; it also includes agency of the learners and finding solutions (2013, p. 2).

Education for Sustainable Development and the Storyline Approach

The commonly accepted defin tion of "sustainable development" formulated by the Brundtland Commission is "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development 1987, p. 37). Lambert and Morgan (2010, p. 137) challenge the use of this concept of sustainable development for educational settings. They argue that the concept is far too abstract to be meaningful to young learners (2010, p. 137). In order to make sense, questions related to sustainability must be contextualised and not referred to in general terms. "There is no such thing as a global climate change[..] but instead a million climate changes of variable speeds and effects" (Lambert & Morgan, 2010, p. 138). The teacher's challenge is to defi e examples that may refl ct a reality that learners can relate to. Moreover, connecting the concept of sustainability to the learner's life-worlds must be facilitated by examples that provide opportunities for critical refl ction, relational understanding, and enable visibility into connections between human activity and the natural environment (Lim, 2015; Møller, 2001).

ESD carries the risk of becoming an indoctrination of the moral right and wrong actions (Standish, 2009; Lambert & Morgan, 2010; Mogensen & Schnack, 2010). Rather, education must *help learners make* worthwhile distinctions (Lambert & Morgan, 2010; Mogensen & Schnack, 2010). Mogensen and Schnack emphasise the importance of participatory, democratic, and action-oriented teaching, summarising the aims of environmental education: "Th s way of teaching emphasises the building of capacities and powers of each human individual to question preconceived opinions, prejudices, and given facts, and intentional participation in the shaping of one's own and joint living conditions" (2010, p. 61). Further, Mogensen and Schnack (2010) argue that an "action-competence" approach entails democratic participatory learning and state that this may enable students to develop the abilities and desires to fi d democratic solutions to problems. Then, how can TSA contribute to learning processes that promote such goals?

Originally, TSA was developed as a cross-curricular approach to meet new requirements of the Scottish curriculum, in which environmental studies were implemented. Over the years, TSA developed into an investigative approach to experience and knowledge. According to the pioneers of Storyline, the Scottish teacher educators; Bell and Harkness, the overarching aim of TSA is to engage school children in curricular content to prepare and empower them to meet real-world challenges (Bell & Harkness, 2013). Hence, the pedagogy of Storyline appears to share several features with education for sustainable development. TSA offers a learning environment to promote creative, action-oriented and critical thinking among students. In order to elaborate on this, we quote Sallie Harkness: "A key feature of the approach is the very positive way in which it depends on and builds on pupils' existing experience and knowledge. The degree of pupil involvement is also signifi ant, both imaginatively and in practical problem solving. TSA poses problems and asks questions of pupils rather than giving them answers to questions they have never asked" (Harkness, 2010, p. 1).

As outlined in this anthology, TSA is based on inquiry and active participation of learners. The pupils and the teacher explore ideas together. Hence, this approach is essentially experiential and constructivist. "It (Storyline) draws the curriculum together using the environment and social subjects as a stimulus to explore, using expressive arts and language as a means of discussing, describing and explaining" (Harkness, 2010, p. 1). The teacher and the students create a story together, a story with an environment and characters that mirrors real-life. Based on curricular aims the teachers plan the context of the story: time, place, and certain events and the students create the characters. Fictitious, 'simplifi d' worlds come to life in the classroom as models, representations of the students' knowledge and perceptions. The learners are supposed to imagine how their characters will react, think, and act when challenged by the different tasks presented to them as episodes in the story. Each episode in the Storyline begin with students discussing an open key question designed by the teacher. "What do you think might happen if …?" "In how many ways do you think …?" The students put forward hypotheses to be tested through studies of literature, data searching, experiments, discussions, etc. At best, this leads to a variety of purposeful activities, including problem solving, critical thinking, and creative work. In the following, we will outline and explain how we planned "Seaside living", a Storyline on a fundamental topic related to sustainable living, with the effort to model teaching principles related to ESD.

"Seaside Living": Description and Reasons

A group of student-teachers looks at their teacher ("teacher-in-role") as she is introducing herself as a researcher and project leader from the Norwegian Centre for Climate Research and Sustainable Development. Some of the students look astonished, some of them are smiling. You can tell from their facial expressions that this kind of behaviour was rather unexpected in a coursework context. The project leader presents the master ideas of a new and green housing project entitled "Seaside Living".

Th s was the way this particular Storyline was introduced to the student-teachers. The project leader explained that this was a so-called epitome project for housing development with the participation of future residents who are willing to live in sustainable ways. Further, the student-teachers were informed that this project, is fi anced and supported both by the government and private stakeholders. The residents are promised affordable housing prices and other benefits in exchange for active collaboration. At the end of the introduction, the audience was invited to apply to become participants in the "Seaside living" project. The student-teachers were then posed their fi st key question: "Who do you think would be interested in participating in the project?" The characters in the Storyline came to life while the student-teachers discussed the need and value orientations of their characters. After the presentation of the character gallery, the student-teachers began searching for sustainable solutions for cutting-edge technologies related to housing and transport as well as ideas for a socially inclusive environment. While they were working, an event was introduced to them as a debate post in a local newspaper. Two so-called climate sceptics attacked the "Seaside Living"

Img. 1: The characters were visualised as collage faces, along with biographies.

project and claimed that it was nothing but a waste of money. The student-teachers were required to respond to the article on behalf of their participants and began exploring the arguments of the climate sceptics searching for knowledge on climate change. In order to support their inquiries, a physicist gave a lecture on global warming and its consequences. Th s created ground for discussions in the groups, which were required to agree on arguments that were to be presented in an answer to the climate sceptics.

During the Storyline, the student-teachers were given opportunities to discuss certain fundamental aspects of sustainability and lifestyle. The participants agreed on a fi ld to explore; housing, transport, commerce, food and social gathering areas. In the fi al episode, the groups presented their fi dings and ideas in a plenary session, with models and visuals for sustainable solutions.

Tab. 1: Storyboard for "Seaside Living"

Day	Episode	Key questions	Activity	Content	Criteria
1	Introduction "Teacher-in-role" as project leader of "Seaside living 2025" invites individuals, 25–60 years old, to participate	What kind of individuals do you think could be interested in participating? What kind of motives could they possibly have?	Groups of four Brainstorming on motives: individual, group, plenary		

Day	Episode	Key questions	Activity	Content	Criteria
	Information provided by the project-leader: The following project fi lds must be developed: 1. Housing 2. Social meeting spots 3. Transportation; green mobility 4. Green consumption and leisure activities	Who are the participants? What do you think life-quality means to your character? What kind of fundamental values do you think are essential to your character? Which project fi ld does your group wish to join?	Students make one character each. Collage in A5-format Creating biographies. Request for participating in the project. The group decides on a fi ld	Values and needs My need and other people's needs. Economic growth and sustainable development. Democratic processes	Trustworthy characters. Diversity; age, social and cultural background 1. Low emissions 2. Circular economy 3. Green mobility 4. The needs of different groups must be considered
	The characters		Presentation in plenary		
2	Inquiries the new living area	What characterises good and less good sources?	Source critique		
	Newspaper article is distributed Some politicians and climate sceptics attack the project The project leader asks the participants to write an answer to the newspaper article	What do you need to know to respond?	Discussions	Communication to the public on climate change	
	Expert lecturing on climate change and global warming	Students listen to and pose questions to the expert		Global warming. Causes and consequences	
	Newspaper article fulfil ed Inquiries continue	How to create a debate article for the newspaper?	Writing an article to the newspaper.	Writing skills, argumentation.	Structure for a debate article
	Inquiries into the project tasks continues	How can you present your ideas for the audience?			Digital presentations
	Sharing ideas in cross-groups	What can you learn from listening to others' ideas?	Cross groups		
	Presentation of ideas		Plenary		
	Evaluation				

Participants and Sources of Data

Th s study is based on a Storyline in social science coursework, with 61 student-teachers as participants. These students were specialising to become teachers in grades 5–10 and were in their fourth semester of a five-year master's programme. During the Storyline project, the student-teachers were divided into two groups that were assigned to work with two equivalent urban living projects. The empirical base for this study comprises mainly two written sources in addition to our observations as teachers and researchers. The fi st written source is a simple evaluation form with questions on the student-teachers' general experiences. These forms were filled out immediately by 49 students after fi alising the Storyline. The forms were anonymous and 11 of the student-teachers did not answer due to absence. The second source is 61 individual refl ction texts. A week after fi alising the Storyline, the student-teachers wrote individual refl ction texts regarding their learning outcomes and how TSA could be related to ESD. These texts were returned in a non-anonymous manner. All the student-teachers agreed to participate in the study and were informed that they could withdraw from it at any point.

Methodological Considerations

The two of us who worked on this study participated as teachers throughout the Storyline project. It can be challenging to keep a distance from the evolving project when one is a part of it (Hammersley & Atkinson, 1987, p. 27). In exploring our own practice, we were aware of our dual role as researchers, participants in the Storyline work, and the relationship we have to the group of students as their teachers. Interpreting written sources from our students regarding our teaching practice, we took into account that their statements may be influenced by asymmetrical power relations and as their teachers we are the authorities in position to assess their individual academic performance. Th s is a matter of *trustworthiness* of the study, which must be refl cted in the presentation of the process and in the interpretation of fi dings (Lincoln & Guba, 1985).

Th *confirmability* of the fi dings is also in question. As teachers and researchers, we believe in TSA and are enthusiastic about it. Therefore, we had to be aware of research bias in the interpretation process of the student-teachers' texts and what we perceived from observing their reactions and interactions. We were left to ourselves in two different classrooms with each of our groups and we did not observe each other's work at any time. We attempted to take advantage of being teachers and performed the same Storyline, with identical storyboards, in two separate groups. Our work was analysed, and the fi dings were interpreted through our two different lenses and subject to critical discussions. Th s probably helped in strengthening the *credibility* of our fi dings.

When analysing the written data, we found no signifi ant differences between the two groups of student-teachers, the data expressed the same patterns. Hence, the data from the two groups are not separated in our analysis. Given that the students in the two groups reported much of the same experiences suggests possibilities for the *transferability* in our fi dings. However, we are fully aware that this study deals with a specific c ntext and that our fi dings may not be valid in other situations.

We analysed the two sources of data inductively in order to ensure that the student-teachers' perspectives were represented as well as possible in the results (Lincoln & Guba, 1985). The analysis began with the evaluation forms and we followed the same procedure for the analyses of the refl ction texts. Firstly, we began with multiple readings of each participant's complete response from both the groups. Then, we read the entire text content and identifi d key points, common aspects, and divergent statements (Creswell, 1998). Based on the common and distinct features, we created a preliminary set of codes and collected responses from the two data sources and placed them into distinct units that could be meaningfully coded. Next, we discussed the samples of the responses and compared our coding efforts; we agreed on some codes or created additional codes to represent their meaning as appropriately as we could. Finally, we organised the coded data into overarching categories that we assumed would be representative of the complexity of the data and respond to the study's research questions in the best manner.

Findings

The Evaluation Forms

The evaluation form answered by forty-nine students had four open-ended questions formulated in two pairs on a sheet of paper with four columns: What did you like about the Storyline coursework/why? What could be improved/how? Although the evaluation forms were anonymous, there are still reasons to question the credibility of these responses and whether the student-teachers reported to their own teachers what they really meant and felt. However, the fact that the evaluation forms were not subject to any kind of formal assessment will probably strengthen the credibility. The student-teachers were aware that the purpose of the evaluation was to improve this Storyline's design and it is likely that they believed that they would contribute for that reason. We can add to this that the experiences put forward in the forms are in line with our observations of how they responded to and worked out the tasks given to them throughout the Storyline process.

Going through all their written statements and arguments, we distinguished and counted a total of 148. We counted 110different statements for the fi st question on approvals and 38 statements for the second question on improvements. From this material, we developed categories of experiences that emerged from the evaluation forms. An analysis of the responses to the fi st question (what they approved and why) revealed two main themes/categories: The relevance of Storyline experiences to their *future professional practice* (Table 2) and the relevance to their *own learning process* (Table 3). In Tables 2 and 3, respectively, we will give examples of the two categories and related sub-categories.

The second question about improvements (what could be improved and how) is the third category. The students' views related to improvements revealed three sub-categories as shown in Table 4.

Future Professional Practice

Most of the students commented on how they perceived TSA as relevant to their future professional practice as well as for their own outcomes related to content specific matters and to outcomes on a personal level (Table 2).

Tab. 2: Examples of sub-categories related to future professional practice

Sub-category	Student-teachers' experiences and arguments
Transferability	"Teaching topics on sustainable development is a challenging task and now I have got ideas on how to teach such topics" "I think this design can be transferable to all school levels when working on complex questions related to Sustainable development" "I will bring these experiences of how to teach SD into my own future classroom"
Facilitating creativity	"Th ough this experience I learned how to support creativity in children" "I learned to know the importance of engaging students in creative and explorative learning activities"
Content specific knowledge	"I learned a lot about sustainable development that I will make use of in my daily life and as well as in the teaching of my own pupils" "I learned a lot about climate scepticism and a way to facilitating different perspectives in my future teaching" "I got a deeper understanding of climate change"
Future optimism	"We realised that there are possible sustainable solutions to ways of living" I will bring these experiences with me to school" "I think knowledge of possible solutions contributes to future optimism in young people"

Several students reported, as their fi st comments in the evaluation forms, that their own experiences had given them an increased awareness of how to engage school children in topics related to sustainable development. They expressed enjoyment with the creative aspects of Storyline, and they claimed that they had acquired ideas on how to foster creativity in children through their own experiences.

Learning Process

A large number of the students (36 out of 49) highlighted the opportunity to work in a creative and autonomous manner with the content matter (Table 3). Almost half of the students underlined that their experiences with collaboration in groups felt unique and authentic. We observed that they worked eagerly and that there was a good atmosphere in the classrooms. Their facial expressions and seemingly eager discussions indicated that their experiences with collaboration were positive.

Tab. 3: Examples of sub-categories related to student-teachers' learning processes

Sub-category	Student-teachers' experiences and arguments
Meaning	"Sustainable development in a fi titious, but realistic context, motivated real dialogues in the groups" "Th s is concerning us" "Th s is a project for our time"
Collaboration	"Th s is real collaboration, not the traditional kind of group work we are used to" "Th ough collaboration, everybody engaged in searching for information and creative solutions to ways of sustainable living"
Creativity/ Autonomy	"We had time, space, and felt free to search for creative solutions" "I learned from being creative working with content knowledge; drawing, designing and discussing"
Joy	"It was fun to learn in a completely different way" "I was motivated by having fun"

Improvements

It is of great importance to take the critical comments into account (Table 4). A few student-teachers questioned the amount of time spent on Storyline at the cost of ordinary "lecture-time". Requests for more lectures can be interpreted as a need for more reviews of the curriculum on subject matter because they consider that to be the most urgent matter related to their professional practice. As teacher-educators, we share their concern because they sorely also require content knowledge to become teachers.

Further, certain statements made by the student-teachers suggest that the criteria for certain portions of the Storyline could have been clearer. However, some uncertainty is partially because they were unfamiliar with TSA. The formulation of clearer and more distinct criteria for the learning process is not necessarily desirable, while we intended to give the students freedom to react independently and unfold creativity. However, we do believe in good frames and structures in terms of ideas, models, and tools necessary to support creativity. Further, some of the students claimed that the characters should have been more involved in the project. They are certainly right. Developing key questions, which more directly involve the characters in purposeful ways, is essential. From these critical comments, we learned about the importance of structures and criteria and of sticking to a tight time-schedule. The need for predictability and strict routines will always be present in any classroom and some pupils have a greater need for structure than others do. A couple of students also felt the need for more didactical refl ctions during the project.

Tab. 4: Examples of sub-categories related to improvements

Sub-categories	The students-teachers' experiences
Time spent	"Too much time spent at the cost of other activities on the cost of lectures"
Facilitation of the Storyline; Structure Criteria Content	"I think the Storyline characters should have been more involved" "I wanted more distinct criteria for the tasks given during the coursework" "I wanted more didactical refl ctions during the Storyline work" "I wanted to focus more on dilemmas connected to different solutions to climate problems"

The Reflection Texts

Shortly after fin shing the presentations of their project work in the last episode of "Seaside Living", we conducted a review of the Storyline work and the pedagogies of TSA. Finally, the student-teachers wrote individual refl ction texts on their experiences with "Seaside Living".

The refl ction texts were limited to 2000 words and the student-teachers responded to the following three questions:

1. What is your learning outcome from the Storyline project?
2. How can TSA possibly promote the overarching curricular aims related to ESD?
3. How can your Storyline experiences possibly be transferred to ground school teaching? Choose a grade and discuss an idea of a possible Storyline topic.

Before beginning the analysis, we anonymised these texts and followed the procedure as described earlier. The fi st question in the refl ction texts refl cted the common themes in the evaluation forms. The texts deepened the categories derived from the evaluation forms and a better understanding of how "Seaside Living" promoted creativity, problem solving and collaboration and the manner in which the student-teachers considered TSA to be transferable to the classroom. From the second question, we were able to glean their thoughts and views on TSA and ESD, and from the Storyline ideas that they put forward as responses to the last question, we obtained a few concrete indications of their knowledge of TSA. Together, these refl ctions provide a basis to discuss whether this approach made sense to the student-teachers and whether they consider it relevant to them as future teachers.

Creativity and Collaboration on Real-life Challenges

The words most often repeated in the evaluation forms were 'creativity' and 'collaboration' (36 out of 49 students). In the refl ction texts, the student-teachers elaborated on how the sense of creativity and genuine collaboration influenced their learning outcomes. They described feelings of autonomy and space to unfold creativity. Moreover, they emphasised the possibilities of developing ideas and products, both individually and in collaboration with fellow students: "Teachers must be creative and it is an op-

portunity for us to experience creative teaching and the joy of learning, without concentrating on memorising a lot of content" (Student 28).

Another excerpt from a refl ction text indicates creativity and autonomy as major factors in their learning process:

> "Coursework of this kind, with creative and open tasks, was unfamiliar to me. After a while at the university, we got into routines with reproduction of academic texts, strict formalities and structure. Therefore, I appreciated so much having this opportunity to fi d my own way to solve problems and create products. We all interpreted the questions in different ways and in the groups, we made meaning together and then we learned from the other groups how many different solutions of sustainable living there are" (Student 34)

Th s excerpt emphasises critical thinking as a natural part of problem-solving: "We were supposed to fi d sustainable solutions and explored alternatives and critically evaluated them" (Student 12). The following excerpt illustrates how this kind of open inquiry served as a catalyst for creativity:

> "I was really challenged to think creatively and to fi d solutions to problems I never had refl cted upon before. I would not be so engaged if this topic were presented to me in a lecture. I have really experienced the positive sides of the Storyline method" (Student 52)

The following excerpt illustrates a student's experience of collaboration in the process of problem-solving:

> "It was difficult to discuss and to fi d arguments. Luckily, I had a capable group. They helped me to understand the expert lecture on climate change and they made it possible for me to understand the arguments of the climate sceptics and what is really happening regarding global climate change in the world. […] we were challenged to discuss, to be creative and search for possible solutions […]." (Student 37)

A multitude of perspectives will always be present in a Storyline context. Several student-teachers emphasised this aspect as being important for their learning outcome: "Because the characters had diverse characteristics, beliefs, and personality, I learned about different ways of thinking, views, and beliefs. I had to argue for views on behalf of my character; views I do not share myself" (Student 13). The same student also refl cted on an outcome at a more personal level, as he/she claimed that as a result of the Storyline, he/she had begun refl cting more upon own consumption and own ability to act.

Cooperation, like creativity, is probably fundamental to teaching in ESD. As Sandri (2013, p. 768) claims, "the teachers should focus more on supporting their students to ask questions in order to fi d new solutions rather than providing them with answers'. In the evaluation texts, numerous student-teachers expressed the joy of doing practical, creative, and varied activities together along with their fellow students. A few students characterised the collaboration as unique or real; in the texts, they elaborated how the

collaboration worked to enhance their learning outcomes. One student phrased it in the following manner:

> "According to my experience, group work is often a burden with little learning outcome. In this project, however, it has been quite the opposite. We worked on meaningful, concrete tasks together. I want to bring this perspective to my future classroom" (Student 45).

The following excerpt indicates how they supported each other in their individual learning processes:

> "From the very beginning, Storyline engaged me because creativity and collaboration unfolded plenty of resources in our group. According to my experiences, traditional teaching makes pupils passive and the teachers do not make use of the pupils' resources" (Student 39)

Several students attributed their positive experiences of collaboration to a meaningful context and content that felt relevant to them. In the evaluation forms, one of the students expressed, "Sustainable development in a fi titious, but realistic context, motivated real dialogues in the groups" and another one stated that this is a "project of our time".

Transferability to the Classroom

Statements made in the evaluation forms (22 of 49) indicate that taking the role as pupils made them refl ct upon their roles as future teachers. One of the students elaborated this in the refl ction text: "Th s Storyline was a positive experience and useful to bring along into my future classroom on how to include children, building relations and friendship among them". (Student 54). The following excerpt refl cts challenge in teacher education, bridging the gap between theory and practice:

> "The use of creativity, imagination, cross-curricular approaches are what the teacher-educators tell us to do, but we get little of the practical guidance or opportunities to experience on how to do it" (Student 39)

Participating in the Storyline as learners, and not merely receiving a lecture on the method provided opportunities for critical refl ction and fi ding ways to deal with the pitfalls of Storyline: "For us as student-teachers an important factor is that we became aware of potential problems in the Storyline project and possible solutions to these problems". (Student 38)

The student-teacher quote below emphasises how fi st-hand experiences are advantageous:

> "You learn from 'hands-on' experiences, to feel it on your body. I think it will be easier to implement SL to your future classroom, especially because it was connected to our own acquiring of new content knowledge […]. You get ideas and thoughts to build upon. I appreciated the combination of creativity, collaboration and in-depth seeking

> for knowledge. Storyline embraces different pupils. Somebody likes to do more creative work while others prefer to dig into subject matters" (Student 47).

In the evaluation forms, approximately half of the students (32 students) made statements related to specific outcomes in terms of content matter. The following excerpt indicates how one of them considered the Storyline-work to be supportive of perspectives on sustainable development, as outlined in the national curriculum and in the literature on ESD:

> "We worked in a way that I think corresponds well with the competencies [for ESD] listed by Sinnes (author of curricular literature on ESD, Sinnes, 2017) as signifi ant in her book. Therefore, this topic feels so relevant to me" (Student 8)

Our fi dings indicate that the content matter as well as the teaching approach turned out to be meaningful and relevant to the learners. The reasons provided by the student-teachers have a lot to do with engaging in tasks and facing challenges in a context that made sense to them.

Making Sense of Storyline and Education for Sustainable Development

The fi dings of the study suggest that Storyline facilitated the student-teachers' encounters with the essentials of the content and made these accessible to them. There are reasons to assume that several student-teachers gained fundamental learning experience from insight into real-world challenges, both personally and professionally, related to both ESD and TSA. The didactical metaphor "double unlocking" derived from the theories of Wolfgang Klafki (Klafki, 2000) may characterise these learning processes, in the sense that the "Seaside Living" unlocked the students to the knowledge and the knowledge was unlocked to them. The search for solutions motivated "genuine cooperation" according to some of the students. The Storyline offered a learning environment to explore real-life problems and to engage in dialogues on values and possible solutions for future living. In the literature on education, authentic learning is often characterised by activities that mimic real-world situations, meaningful contexts as extensions of the learner's world, and by the learners being personally and emotionally involved (Rule, 2006). Th s is at the heart of transformative pedagogy and ESD. It is much about how well we succeed in organising students to plan and act with others, to learn from each other, and seek to make collective decisions (Adomßent & Hoffmann, 2013). One of the student-teachers explicitly indicated the experience of the teacher-educators discussing visions of good teaching and how these visions remained unclear to them. Th s is a seemingly enduring challenge in teacher education and is aptly described by Peck and Tucker: ""Do as I say, not as I do" is a poor formula for getting people to act the way you want them to" (Peck & Tucker, 1973, p. 955 in Loughran & Hamilton, 2016). Th s paradox calls for critical self-refl ction among teacher-educators who do not see practical work in the classroom as their responsibility. According to a research study

on six teacher education institutions in Norway, teacher-educators tend to look upon schools as the primary site for student-teachers to learn about practice and consider that questions of practice must be delegated to schools (Hammerness, 2013, p. 412). The manner in which teaching is perceived and the ways in which learning about teaching is experienced differs substantially among teacher-educators. Th s is a challenge at the general level of pedagogy, but it becomes even more challenging in terms of subject specialisation as highlighted in studies of "pedagogical content knowledge" (PCK) (Loughran & Hamilton, 2016, p.5). Teaching involves constant priorities and time is a crucial variable in coursework and increasing the amount of time spent learning in, through, and about practice is likely to take time away from other aspects of teacher education. Certain scholars have raised questions regarding whether it can be at the cost of development of specialised content knowledge (Ball, Thames, & Phelps, 2008). Th s is a key issue in the pedagogy of teacher education – the activity that teacher-educators engage student-teachers in to support their learning of content knowledge as well as of practice. Our experiences with "Seaside Living" indicate that it may be worth the time spent.

Enacting teaching in subject studies on campus as means of connecting theory and practice is a possible method to make the visions of good teaching more explicit to student-teachers. We made our teaching a site for inquiry and made it possible for the student-teachers to gain an insight into practice. "Seaside Living" also created a site for inquiry to support the student-teachers in developing pedagogical content knowledge.

Conclusion

It is evident that ESD calls for alternative educational programmes and transformative pedagogy. The fi dings of this study indicate that TSA has the potential to promote key features of ESD according to the guidelines of the UNECE expert group – transformative pedagogy that draws on the experience of learners and creates opportunities for the development of creativity and the capacity to imagine and examine alternative ways of living. Storyline is also worth time spent for numerous purposes in teacher education. The approach is composed of several core practices of good teaching. For example, consequently taking the students' prior knowledge into account and supporting students with frameworks for learning, structures and criteria. Further, Storyline uses open questioning to enhance the students' hypotheses, thereby enabling them to explore and examine information. TSA offers the initial teachers experiences with an alternative to the traditional way of teaching and opportunities to decompose and refl ct on different ways of teaching.

Relevance and choice in the Storyline project, along with discourse within a community of learners appeared to motivate and empower student-teachers to increase their knowledge. The fi dings of this study indicate that "Seaside Living" promoted the student-teachers' understanding of sustainable development and ESD. Modelling Storyline provided opportunities to see teaching from a student's perspective and refl ct upon and discuss the principles of teaching and learning in the context of sustainability. In this sense, enacting pedagogy in coursework can serve as an alternative "fi ld expe-

rience", offering students the opportunities to yield new insights and understanding of teaching and learning and, thus, forge links between theory and practice.

We put considerable effort into planning this Storyline project, and found it rewarding, particularly in terms of engaging the student-teachers in meaningful learning activities, as we observed how creativity, inquiries, and dialogues unfolded in coursework on the university campus.

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Chapter 13

Being in the Moment – An Investigation of the Aesthetic Learning Processes in a Storyline

Solveig Toft and Gunhild Brænne Bjørnstad

Abstract. Th s chapter describes a qualitative study that illustrates the aesthetic learning processes facilitated by a specific Storyline conducted in a Teacher Education Programme in Eastern Norway. The purpose is to uncover the types of aesthetic competences that are developed through aesthetic working methods in interdisciplinary projects, and which competences must be strengthened within the aesthetic subjects' own context. Despite Norway's new national curriculum emphasising creative and explorative learning methods, the aesthetic subjects are under pressure. There is no requirement for teacher competence in the subjects, while they are demanded as methods in interdisciplinary projects and for in-depth learning. Our theoretical framework in this study is the four aspects of aesthetic learning processes, learning IN, WITH, ABOUT and THROUGH aesthetic activity, as explained by Lindström (2012),supported by Dewey's (1980) view on aesthetic experiences. The study consists of group interviews with the students after completion of a cross-curricular Storyline.

Keywords: Aesthetic learning processes, student-active learning, interdisciplinarity, learning About, in, with and through art, aesthetic experiences.

Introduction

Interdisciplinary and cross-curricular projects are common teaching methods in Norwegian schools. Such projects often make use of aesthetic tools, such as drawing, sculpture, music, drama and so on, to provide a diversity of impressions and modes of expressions. In the newly developed national curriculum "the Knowledge Promotion Reform 2020" (Ministry of Education and Research, 2019a) the intention is to provide substantial in-depth subject knowledge, to encourage more topic-based approaches in the classrooms and to increase aesthetic methods in learning processes (Norwegian Directorate for Education and Training, 2017). As the allocated hours for aesthetic subjects in schools and teacher training have constantly decreased in the past 40 years (Espeland, Allern, Carlsen, & Kalsnes, 2011,p. 15), the Ministry of Education and Research (2019b) recently published a strategy note to reinvigorate the practical-aesthetic subjects and creative work methods in general. The strategy highlights the practical-aesthetic subjects' opportunities, their intrinsic value, and the importance of practical working methods in all subjects and in interdisciplinary contexts. The ambitions have, however, been criticised as being unattainable because there are no qualifi ation requirements for teachers in arts subjects in Norwegian schools (Carlsen, Randers-Pehrson, & Hermansen, 2018; Karlsen, Skredelid, & Holdhus, 2020; Sande, 2019).

Th s criticism may refl ct a dilemma in our postmodern era. On the one hand we recognise an interdisciplinary turn in the arts (Condee, 2016), stating that aesthetic working methods provide a way of learning that promotes motivation and in-depth learning and is thus important as a method in all subjects (Sæbø, 1998, p. 19; Østern, 2013; Østern et al., 2019). It is however unclear what type of professional expertise this interdisciplinary teacher may need, as the learning within the art subjects seems to be on a general level, not requiring specific subject knowledge or skill (Condee, 2016, p. 18). On the other hand, there are those who argue that the aesthetic subjects' intrinsic value is that they involve training in materials, techniques, form and modes of expression (Lindström, 2012; Marner & Örtegren, 2003, pp. 83–97; Richmond, 2009). The claim is that more time and professional specialisation is required for learning in the aesthetic subjects, and specific requirements for professional competence of the teachers is essential. Due to the constant pressure to prioritise core subjects of languages and mathematics, one would argue, on this perspective, that it is important to prevent the aesthetic subjects being reduced to only support other purposes in interdisciplinary contexts (Marner & Örtegren, 2003, pp. 50–51).

Aesthetic methods and learning processes are characterised by creativity, exploration, work in different media, and aesthetic experiences (Austring & Sørensen, 2006; NOU, 2015, p. 49). In aesthetic subjects, the learning processes will be aimed at knowledge and expertise in materials, techniques and artistic expressions (Marner & Örtegren, 2003, pp. 83–97; Ministry of Education and Research, 2019a). In interdisciplinary projects, the creative work will often aim at a learning goal independent of the medium itself (Lindström, 2012, p. 176; Marner & Örtegren, 2003, p. 46). Since these two approaches to aesthetic learning processes provide the learner with different competences, it is of interest to clarify which competences the learner achieves in aesthetic activities in an interdisciplinary context.

Th s chapter elucidates the kinds of aesthetic learning processes that take place in an interdisciplinary Storyline – a student-active learning process evolving through a narrative (Eik et al., 1999) – when the aesthetic subjects are included as a method for an overarching learning goal. Th s clarifi ation will help to uncover learning processes that need to be reinforced in the art subject's own contexts in order to ensure quality of aesthetic learning. Our research-question is thus:

> What kind of aesthetic learning processes are facilitated in a Storyline based on goals, media and students' experiences?

By applying a model for aesthetic learning processes to analyse selected sequences in the Storyline, we want to understand the types of learning processes facilitated by the Storyline and utilise group interviews to understand how students engaged in, and responded to, the aesthetic activities.

Aesthetic Learning Processes

Our understanding of learning is grounded in Vygotsky's idea of social constructive learning, where knowledge is developed in the constant relation and negotiation between the individual and the social context (Vygotsky, Bielenberg, & Roster, 2001, p. 22). Vygotsky's mediation concept is about interpreting the world through tools that are rooted in different social practices. These tools could be languages and concepts, but also images and other aesthetic forms of expression. Marner and Örtergren (2003) claim that different forms of media are equal and horizontal, i.e. that the verbal language, the image language and other aesthetic forms of expression are equally important for communication and learning (ibid., p. 23).

Lindström (2008, 2012) refers to Marner and Örtegren's (2003) understanding of the media concept, and analyses aesthetic learning processes based on whether the work process is media-specific or media-neutral. Furthermore, he looks at whether the work is characterised by divergent or convergent thinking. His analysis configu es a model (figu e 1) with four boxes containing different types of aesthetic learning forms with dichotomous properties: Learning ABOUT, IN, WITH and THROUGH art.

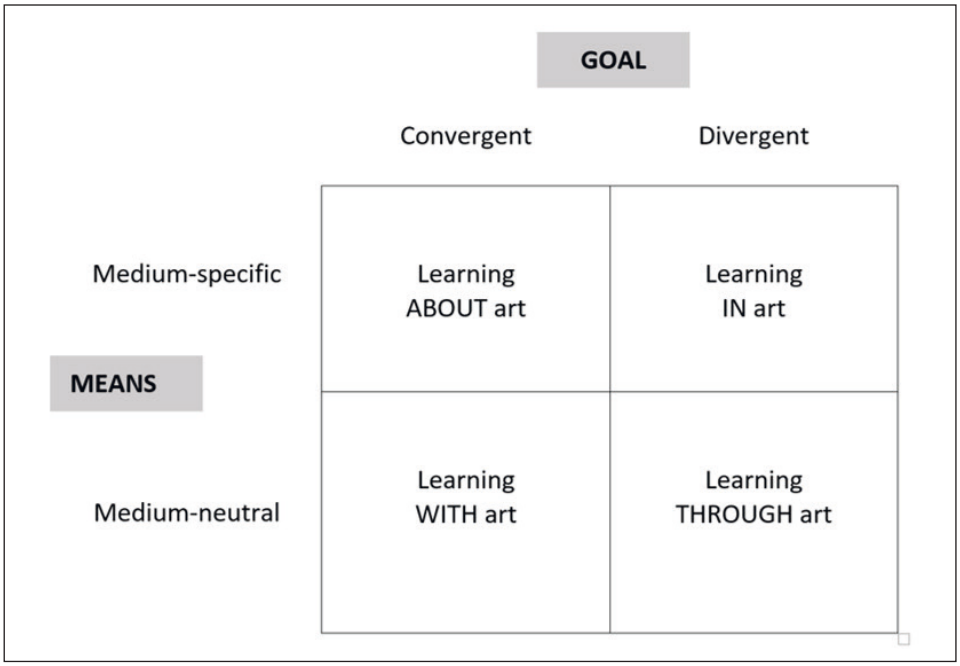

Fig. 1: Types of aesthetic learning (Lindström, 2012).

The columns describe the goals, i.e. what kind of learning one pursues through aesthetic means. If the goal is given in advance, it is convergent. If the goal is open, unpredictable and a combination of what you know and can do in new ways, it is divergent. Divergent learning processes involve creative work and the ability to combine and apply knowledge in new situations. The rows describe the means and refer to the media, i.e. the materials used to achieve different goals. If the expression is dependent on the

medium and one needs knowledge to handle it, it is referred to as media specific. If the purpose of the media is to illustrate other phenomena, and that one could choose other media to do the same, it is referred to as media neutral. When the goal is set in advance (convergent), for example learning about a specific medium, it is learning ABOUT art. Th s often refers to the basics of art education. When the goal is set in advance (convergent), and the medium is neutral, i.e. it could have been another medium for the same purpose (media neutral), it is learning WITH art. Th s refers to the integration of art with subject matter from other disciplines. If the goal is open (divergent), and one combines and applies knowledge for new purposes in the meeting with a specific media in the process, it is learning IN art. Th s refers to experimenting with materials and techniques to achieve a visual effect, convey a message or express a mood. When the goal is open (divergent), and the medium is neutral, i.e. it could have been another medium for the same purpose, it is learning THROUGH art. Th s refers to the thinking dispositions that students might acquire by involving themselves in art. The categories are not autonomous, i.e. in an aesthetic learning process several categories can be involved. No combination of goals and means is superior to any other but should be considered complementary aspects of a coordinated learning strategy (Lindström, 2008, p. 63). A balanced approach to aesthetic learning requires a continuous emphasis on all four aspects (Lindström, 2012, p. 170). In Lindström's analysis, the focus was learning strategies (ways of learning), ways of teaching and ways of assessing. We believe the model can be used to focus on the framework and goals of creative activities as well.

An essential aspect of learning in the aesthetic subjects is the importance of aesthetic experiences, explained by Dewey (1980) as occurring genuinely meaningful (p. 44). The aesthetic experiences are embodied, emotional, and reconstructive by nature, allowing new knowledge to emerge. An experience is an interaction between doing and undergoing (ibid., 1980, p. 46) between man and the world in which he lives. Dewey distinguishes between different types of experience. Basically, any experience is a result of interaction between a live creature and some aspect of the world in which he lives (ibid., 1980, p. 203). When an experience has an emotional quality that gives unity in the various parts of the experience, the experience has an aesthetic character (ibid., 1980, p. 202). If the parts of the experience have an inner connection and move towards completion, the experience becomes an aesthetic experience (ibid., 1980, p. 200). If the aesthetic experience reaches its completion, it is followed by refl ction. The unrefl cted and unprocessed impressions will be given order and context and the aesthetic experience is fulfilled (ibid., 1980, p. 212). Parts will be connected to a whole, the experience gains structure and unity and the aesthetic experience becomes larger, of more vital quality, and is transformed into a completed aesthetic experience (ibid., 1980, p. 48).

Sæbø (1998) claims that the aesthetic dimension of a learning process consists of aesthetic experience, aesthetic praxis and aesthetic criticism (p. 402). These three aspects give an in-depth understanding and must appear in interaction with each other. Being able to experience art (observing and interpreting) combined with the ability to participate in the making of art (practicing and exploring art forms) develops the aesthetic criticism, which can be seen as an understanding of the aesthetic dimension, and having the vocabulary and terminology to express one's own views on aesthetic

work. Austring and Sørensen (2006) defi e aesthetic learning as being able to transform impressions through aesthetic symbolic expressions (p. 85). Th s transformation is in line with the concept of in-depth learning, explained by Østern et al. (2019) as a contribution to the metacognitive aspect of learning. The depth can be understood as an embodiment, influenced by affects, such as sensuous, intensities, anticipations and bodily atmospheres (ibid., p. 50). An aesthetic experience involves an emotional reaction, for example when you encounter art or when you are active in a creative process (Austring & Sørensen, 2006, pp. 69–70). Work in aesthetic and creative subjects can, according to Csikszentmihalyi (2008), make you completely focused on the task, losing all sense of time and space, experiencing fl w. Such fl w experiences constitute an intrinsic motivation to continuously explore and develop new ideas and can be found in what Dewey (1980) describes as aesthetic experience.

In the following section, we will investigate the kinds of aesthetic learning processes that are facilitated in the Storyline, by analysing these according to Lindström's model (2012). In addition, we seek to fi d how the individual's personal aesthetic experience affects the quality of the learning process. These operations will lead us to a discussion on how to ensure a varied and diverse approach to aesthetic learning processes in cross-curricular projects.

The Storyline and the Aesthetic Activities

Storyline is an interdisciplinary and student-active method where a narrative is the core of the learning process. The method (hereafter referred to as The Storyline Approach (TSA)) includes key questions, professional loops, and it facilitates exploration and creative work (Eik et al., 1999). It is important fi st to create an arena for events that occur in the story, such as a shared image or installation (p. 32). It is also important to construct figu es as a concretisation of the players in the story, such as hand puppets (ibid., 1999, p. 33).

TSA has been well documented for the learning of cooperative and didactic skills for students (Karlsen, Lockhart-Pedersen, & Bjørnstad, 2019; Leming, 2016; Stevahn & McGuire, 2017). The study of Karlsen et al. (2019) also revealed that experiencing a practical Storyline, influences the students' attitude positively towards implementing TSA in their future profession.

Th s Storyline project was carried out in the spring of 2019 at a Teacher Education College in Eastern Norway and involved approximately 60 students. The topic, which ran over a period of 1,5 weeks, was sustainable development, planned and developed by lecturers from social science, natural science, English, pedagogics, drama and arts & crafts. The competence goals were; extended understanding of the concept of sustainable development, increased competence in natural science, social sciences and English, as well as didactic competence in interdisciplinary work with aesthetic learning methods. For a full description of the Storyline project, see table 1 in Chapter 4, *An exploration of the "mimetic aspects" of Storyline used as a creative and imaginative approach to teaching and learning in Teacher Education* (Karlsen, Motzfeldt, Pilskog, Rasmussen, & Halstvedt, 2020).

Img. 1 left Reusable materials for sustainable development.
Img. 2 right: Making pulp as reusable material. Photos: Kristine Høeg Karlsen.

The Storyline itself was introduced when the students entered the classroom, which was decorated with colours, items and sounds evoking the sea. Their creative process was triggered by an activity where they had to imagine their way downstream to a river delta. Following other activities, the students were introduced to the concept of river delta in a short lecture, called subject loop. They were divided into groups to create a relief of their own river delta on a canvas with pulp and tissue paper. Their models would later be the scene of the fi tion in the Storyline project. At the end of the day, the students were to move to another workshop to design their own puppet and write down the puppet's personality since it would later have a role in the fi tional community that was being developed at the river delta. The following day the students faced a new challenge competing to create the best, most innovative, sustainable and environmentally friendly community at the river delta. While they were engaged with this activity, the teachers staged an "environmental disaster" represented by a bad smell and other dramatic effects, and the evacuation of the students. The experiences that the fi tional characters had of the environmental catastrophe, were given bodily expressions through a drama exercise called tableaux (Sæbø, 1998, p. 102), where the students had to use their bodies as sculptures to express the feelings of their character. Th oughout the Storyline they had to role play, consider different situations and complete tasks from the perspective of their fi tional character.

The Storyline had several other activities that could be defi ed as aesthetic activities, but for the focus of this study we have chosen to concentrate on the creative activities directed and facilitated by drama and arts and crafts, and the students' experiences with these activities, in particular the making of river deltas, puppets and tableaux exercise.

Data Collection and Interpretation

Our research is part of a more extensive research project on TSA in teacher education. All data collection has been approved by the National Data Security (NSD), in line with their recommendations for ethics in research and respondent consent (DPA, 2017). In order to investigate the aesthetic learning processes in this Storyline, we have analysed the framing of three essential aesthetic tasks in the Storyline; looking at the

presentation of the task, its goals and how the media/material are utilised in the task. We have further conducted group interviews to collect qualitative data that assist us in understanding general trends and uncover essential information about the students' experiences with aesthetic learning processes in the Storyline. The group interviews consisted of seven randomly selected groups, named group A-G in the result section, and were designed as a means to obtain in-depth thoughts and understanding of the students' verbalisation of achieved experience (Kvale, Brinkmann, Anderssen, & Rygge, 2015, pp. 67, 179). The interviews were semi-structured, based on a common interview guide with open-ended questions on several topics related to the Storyline, where one section was focused on the topic of aesthetic learning processes. The interviews were carried out with all seven groups at the same time and were conducted by the academic staff members contributing in the Storyline. The interviews were recorded and professionally transcribed.

In the process of analysis, we have utilised a hermeneutic approach, alternating between a systematic coding and an interpretation of statements, which Thagaard (2010) claims provides a deeper content meaning in the analysis (p. 39). The responses were analysed qualitatively using a coding procedure, as described by Hjerm and Lindgren (2011),where the process started by sorting and reading through the material to fi d keywords and meaningful statements (p. 89). Regarding the focus of this chapter, we highlighted the answers given to questions on the students' experience with the creative work with materials, with drama and being in "a role". We were particularly attentive to statements that provided information about the students' experiences in the creative elements of the project, words and expressions that conveyed something emotional in the process of the activities. We were also searching for verbalisation of achieved experience on what kind of knowledge and experience the students had gained or learnt, and we interpreted the statements in relation to Lindström's model (2012). In the process, we read through the data several times, reducing the statements to shorter fragments and fi ally developing codes. Our interpretation of the statements in context aims at uncovering the level of the student's aesthetic experience, as an indication of the in-depth learning of aesthetic subjects provided by the Storyline. The codes that appeared categorised the contents of the aesthetic experiences. One example of how the coding process may look is shown in Table 1:

Tab. 1: Example of coding process

Student response	**Reduced meaning**	**Code**
"I thought it was a lot of fun, and some of the groups had very nice tableaux, or showed a sense of unity […] then you got the feeling that 'our delta is polluted'" (Student response, group G).	Being emotionally moved by observing another group	Emotional observation

Our refl ction on the method leads us to believe that there may be some potential weaknesses in the design. Firstly, the interviews were conducted just after the Storyline project ended, thus, there was little time for the students to refl ct on their experiences beforehand. The format of group interviews allows the participants to build on each other's refl ction, collectively constructing knowledge (Kvale et al., 2015, pp. 335–336). We have therefore not differentiated between the interviewees within the groups but refer to each group as a whole. If we had chosen to identify each student's statements, it could have provided other perspectives in relation to differences in individual student experiences. Secondly, the study was part of a larger programme with an interview guide that contained many questions with different focus. Most of the questions did not encourage deeper refl ction on the students' aesthetic experiences. The level of meta-refl ction in the responses creates challenges in the process of analysis, considering whether they state something general regarding the Storyline as a whole, or are directed specifi ally towards the aesthetic activities. Consequently, we have had to interpret segments of the interviews in relation to larger contexts in order to ensure validity. Furthermore, the interviewers may have influenced the results by asymmetric relationship (ibid., 2015, p. 52), virtue of their role, their fi ld of study and their personality. Th s may have happened through supportive or unsupportive comments, body language and hidden expectations, and in this way influenced the extent and nuances of the answers. In the analysis, we have interpreted the statements by virtue of our pre-understanding and expectations of the answers (ibid, 2015, pp. 211–212). Th s may have highlighted statements that have made sense to the authors in relation to the focus of the analysis and led to the omission of statements that have been interpreted as irrelevant, but which could instead have given the analysis other nuances. Th s study is based on only one Storyline project. TSA can be facilitated in various ways where the aesthetic subjects can be integrated, more or less on the subjects' own premises. However, despite sources of error, we believe that the study helps to focus on the aesthetic subjects and learning processes in TSA and at the same time serves as an example of interdisciplinary learning processes.

The Students' Aesthetic Learning and Experiences

We note that each task in the Storyline has several levels of goals and aims, for example the shared overall goal, aiming at increasing competence on the topic of sustainable development. Another more didactic overall goal is related to the development of TSA as a didactic tool for teaching. The aesthetic activity provides yet another level of goals aiming at competences within the aesthetic subjects. An analysis of the overall goal of sustainable development reveals that the goal is convergent, as it is set in advance, according to Lindström's model (2012). We consider it to be media-neutral, as we have multiple ways of gaining such competence. Th s leaves us in the corner of learning WITH art. Th s is also transferable to the didactic goal of learning TSA, where the goal (learning TSA) is convergent, and the means are media-neutral (could be done in multiple ways). All of the aesthetic activities in the Storyline have didactic purposes, exposing the students to different teaching methods. In other words, both of these overall

goals, the topic-related goal of competence about sustainable development and the didactic goal, are designed to learn WITH art, indicating that the arts are only methods for these purposes, without strengthening the intrinsic value of the aesthetic activity.

In the following, we will take a closer look at the aesthetic activities in order to determine the types of aesthetic learning processes facilitated in these. We have chosen to look at each activity separately, describing its goals and media, and combining it with statements expressing the students' experiences to determine the quality of the experience.

Making the River Deltas

The task of making the river deltas was done in pre-selected groups after a short teacher-led introduction on the available materials: pulp, tissue paper, glue and canvas. The students worked for two hours to sketch and create their relief. As the topic of the Storyline was sustainable development in river deltas, the main purpose of the task was to use and visualise knowledge of a river delta. The aesthetic purpose of the activity was to provide experience in creating and visualising an idea through flex ble and concrete materials in a social setting, thus contributing to aesthetic professional competence. The design of the river delta had unlimited possibilities within the concept, as the students started working individually before negotiating their designs in the group. In this regard, the goal was open and divergent, as nobody knew what the design would end up looking like in the beginning of the process. The materials were specifi ally selected to encourage experimentation, requiring no previous media-specific knowledge. The task is therefore considered to be medium-specific and aimed at learning IN art with a divergent goal. According to these frames, we consider the aesthetic purpose of the task to facilitate learning IN art, systematised by Lindström's model (2012).

The students' statements confi m this. One student describes how they developed their creative idea through the encounter with the materials, how one idea leads to another while getting familiar with the materials:

> "I think we noticed how it created itself, as we went along. When we thought we had fin shed, we saw that 'now I see there is a waterfall there. We need a bridge there…' and then it just kept on rolling. […] It kind of made itself, and that was fun" (Student response, group C).

Learning IN art can also be supported with the following statement: "We just skipped the planning, and the more we got into it, the less we planned" (Student response, group C). We interpret this as an expression of a seamless communication within the group and the available materials, allowing them to explore the encounter without having to achieve a certain goal. It appears that through the process, the students were not restricted by the sketch they had made in advance, but rather let the affordances of the materials create possibilities as they gained sensory acquaintance. The ideas appeared in the encounter with the materials, strengthening the aspect of learning IN art, according to Lindström's model (2012).

Img. 3: Making the river delta. Photo: Hanne Eik Pilskog

The students' experiences with making the river deltas were mainly positive, as one student expressed: "It was a good experience…" (Student response, group D). Some of the groups, however, show signs of being in fl w (Csikszentmihalyi, 2008), where they completely lose track of time and space "…we were supposed to decide when to take a break ourselves, but we forgot, and ended up completely exhausted afterwards!" (Student response, group C).

Making the Puppets

The puppets were created individually in two separate rooms with all necessary tools available. The students got a brief introductory video to the basics of making the puppets but were allowed to explore their own ideas. One hour was allocated for the task, with the possibility to fin sh it the next day. We used recycled materials, such as reusable textiles, socks, plastic bags, yarn, buttons and glue. Within the context of making a puppet, designing the character's personality offered many possibilities and could be done in countless ways. Therefore, the challenge of the task was of a divergent nature, allowing the aesthetic expressions to differ. A range of recyclable materials to complete the puppet was also provided, making this task media-specific as the aesthetic goal was related to the reusable fabrics and materials. According to Lindström's model (2012),we regard this task to facilitate learning IN art.

The students expressed that through the creative process of making their puppet, their views changed, and they became more emotionally attached to the puppet. One student said:

> "It started very 'awkward' but became more fun the more life I managed to give the puppet. It became a part of the delta. When the delta and the puppet were fin shed, I

Img. 4:
Student making a puppet.
Photo: Kristine Høeg Karlsen.

was no longer embarrassed to walk around in the college with it…" (Student response, group C).

Another student said: "[…] ok, I am going to give life to this Bergans sock. The more you devoted yourself to the project, the more decoration it [the puppet] got, and the more special… a real 'loner' it became" (Student response, group C). These statements indicate a process where the creation and personality of the puppet, in other words the aim, appeared through playing with the materials, reaching towards the divergent goal. They had not decided how the puppet was going to look like until they started making it and getting familiar with the materials gave them ideas on how to create the puppet. As the materials were chosen specifi ally to give the students experiences with reusable textiles, media-specific, the student seems to learn IN art, according to Lindström's model (2012).

Some students expressed the importance of communicating within the group, in the creative process: "my character was developed by the others also. Not just an individual process. It was not only me who defi ed my [the puppet's] role" (Student response, group C). Th s statement can be seen as an expression of the collectiveness of creative processes, as explained by Vygotsky, Bielenberg and Roster (2001), where we construct our knowledge through communication and negotiation with others. It strengthens the learning experience of the students, helping them to gain structure and a sense of unity, moving towards a conscious aesthetic experience.

Tableaux Exercise

The drama exercise, tableaux, was facilitated after the staged environmental disaster. When the students came back after being evacuated, they found their deltas littered and the room smelled bad. They were given a few minutes to observe the changes in

Img. 5:
Illustration of a tableau.
Credits: Solveig Toft

the delta, before they were told to stand with the other group members in a big circle in the classroom. Then they were instructed to recall feelings that occurred to them when they were evacuated. After discussing these feelings in the group, they were to create two tableaux (also called freeze picture or image theatre) (Sæbø, 1998, p. 102) expressing the emotions with their bodies, as a sculpture. One tableau should slowly transcend into the other. They worked with their tableaux for 15 minutes, while the drama pedagogue mentored the groups, asking them to think about their positioning in relation to each other, their bodily and facial expressions and to rehearse their expression. When each group had created their tableaux and practised the transition, the students had to share their work in a plenary 'performance' through a collage of bodily expressions, accompanied by music. The aesthetic goal of this task was to use their bodies to jointly express the emotions of their characters. The expressions were not defi ed in advance, hence a divergent goal. Since they were committed to using their own bodies in this task, we consider the task to be media-specific, not requiring knowledge in advance, but rather exploring the opportunities with the media to express the intended emotion. Due to these circumstances, the task was designed for learning IN art, according to Lindström's model (2012).

Some of the students expressed satisfaction to "do something physical, trying to show feelings in that way" (Student response, group G). Th s statement identifies the joy of expressing something with the body, in other words transforming an impression to a symbolic expression, which according to Austring and Sørensen (2006) is a key element of an aesthetic learning process. It shows us that the bodily awareness is strengthened, allowing a sense of what is referred to as in-depth learning by Østern et al. (2019), to occur. Other students felt uncomfortable pretending and playing a role in front of people whom they did not know very well: "[…] I don't have any problem presenting in front of others, but not in front of 60 people" (Student response, group C). They state that the task "would have been easier in smaller groups" (Student response, group C). Th s indicates that the students have been emotionally moved in some way, but not necessarily positively. The experience may seem like a conscious aesthetic experience, as the student clearly has refl cted on the frames and outcome of the activity. But since

the experience lacks the quality of creating order and context for the unrefl cted and unprocessed impressions, it cannot be classifi d as a conscious aesthetic experience. In some groups, the constructive learning was the evident path of learning, supported by statements such as:

> "My group tried to make this a collective thing, not working individually. We created the development of anger together. So, I think my group had quite fun, even though some were more comfortable than others. So maybe some of us had to pull a little extra to get everyone involved" (Student response, group G).

The experience of seeing the tableaux of other groups also seems to have made an impression on the students. "I thought it was a lot of fun, and some of the groups had very nice tableaux, or showed a sense of unity […] then you got the feeling that 'our delta is polluted'" (Student response, group G). Activating emotions in the audience can also create aesthetic experiences both for the 'actor' and the 'observer', as they recall and regenerate emotions, connecting them to new situations or experiences. Th s aspect strengthens the aesthetic dimension, as it is described by Sæbø (1998), allowing the students to connect to emotions also by being an observer. It might lead to a greater competence in interpreting expressions and raising the competence of aesthetic criticism.

General Experiences of the Activities and Learning Outcome in the Storyline

When it comes to statements about learning outcomes, several students refl cted on the concept of sustainable development: "I thought it was a great way to get an overall picture of sustainable development. I hope and believe that the perspective presented in the Storyline gets more people thinking in that direction themselves" (Student response, group G). Some expressed new and expanded understanding: "In the past, I was aware that sustainable development meant taking care of the environment, but that it also meant socially and economically, I was not aware of, so it was important that this came to light" (Student response, group G).

Several refl cted on didactic issues, for example: "…that teachers dare to take roles and join the play and immerse themselves in it – I think it lowers the threshold for pupils to take part in it" (Student response, group G), and: "…dare to become a character, dare to offer a little of himself. I think for a pupil, and for us students, it is important and a little fun" (Student response, group G). Some had refl ctions on TSA as an approach to teaching:

> "In school, there are many pupils sitting and wondering: why do I have to learn this? They can't see it from a social perspective, how it can help them in life. But by putting it into a Storyline like this, where they hopefully can see the connection between the subjects, and how to use it in society, then they understand why it is important and what impact it will have" (Student response, group G).

The statements about learning outcomes are related to the overall topic-related goal; sustainable development and didactic questions, and they indicate that the students

have learned WITH art as the goals are convergent, and the learning outcomes are media neutral.

In the interviews, most of the students expressed that TSA was a good addition to the everyday lectures, because of the variety of practical and social work methods. One student said: "…the best with Storyline for me, was that we did so much practical work. The days passed really fast for me. And doing things with your hands and talking to people I think is really good" (Student response, group E). The practical and aesthetic activities were mostly mentioned with positive adjectives: "… we had lots of ideas…I got the task to make mountains and some trees, others were putting on pulp, and it turned out supergood. So it was fun, even though we did not know each other so well" (Student response, group E). Another group expressed that the normal day of study does not contain many creative activities, and one said: "I think it is a lot of fun to be creative at school. There is not much creativity in what we normally do" (Student response, group A). Another student is even more critical to the ordinary school day: "… it is lovely with a break from everyday life. From lectures that are just boring, boring, boring again and again. It feels nice to come and do creative things" (student response, group A).

Words that describe the creative activities are mostly positively charged, such as "fun", "funny", "free and creative", "lovely", "you can do what you want and be free". Others thought making the dolls was "cosy", but also "hard". Some associate the experience of creating with both play and freedom, of letting oneself go: "the more you let yourself get into it (the play), the more fun it becomes. You have to dare to let go and feel free, otherwise it will get boring" (Student response, group C). But not all were equally excited: "because I think it is kind of 'pain' to work with my hands, making dolls and stuff" (Student response, group C). We classify these experiences as aesthetic experiences, as they clearly make inner connections and are emotionally filled, but we failed to see the refl ction, and processed impressions. It appears that the students were mainly emotionally connected to the activities, without transforming the experience into new refl cted knowledge – which is required to bring the experience into a conscious aesthetic experience (Dewey, 1980).

Discussing Aesthetic Learning Processes and Experiences in Storyline

What kind of aesthetic learning processes are facilitated in a Storyline, based on goals, media and experiences? What needs to be reinforced in order to ensure the quality of aesthetic learning? To facilitate aesthetic activities and experiences, it is necessary to ensure appropriate challenges, a feeling of security and ample amount of time (Toft, & Holte, 2017). In the teacher educators' evaluation of the implementation of this Storyline, it was agreed that the time for the aesthetic activities was too limited, not allowing the students to fully engage in the activities. Despite this, the aesthetic subjects appeared to provide a variety of experiences for the students. According to students' statements, the learning that took place encouraged convergent and divergent think-

ing skills, as well as increased knowledge, both media-specific and media-neutral. In relation to the overall goal of Storyline as an approach to teaching, and to the theme of sustainable development, the goal was convergent and media-neutral, that is, learning WITH art. Th s result is in line with Lindström's own description of learning WITH art: "Learning WITH often refers to the integration of art with subject matter from other disciplines" (Lindström, 2012, p 170).

Within the activities of the aesthetic subjects: river delta, puppet making and tableaux, the goals were divergent, and the media were specific. Carrying out the analysed activities mainly led to learning IN art. Lindström's own description of learning IN art says: "Learning IN refers to experimenting with materials and techniques in order to achieve a visual effect, convey a message or express a mood" (2012, p. 170). He further argues that when learning in, and experimenting with materials, aesthetic sensitivity is trained. Learning is then conceived as part of a process rather than on what the students might have achieved at the end of the study programme.

Our analysis, as shown in figu e 2, demonstrates that the aesthetic activities encourage learning WITH art in relation to the overall topic-related or didactic goals, while the aesthetic goals of the tasks are limited to learning IN art.

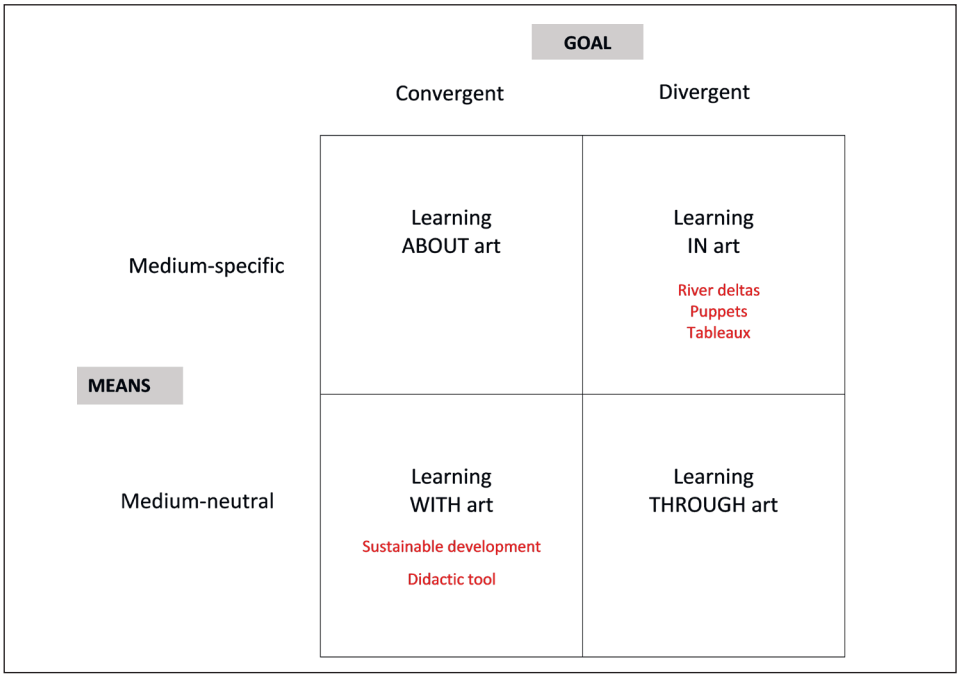

Fig. 2: Analysis of aesthetic activities in this Storyline.

It appears that through the Storyline, the students have not had aesthetic learning processes ABOUT or THROUGH art. According to Lindström (2012), learning ABOUT art refers to the basics of art education, from the elements and principles of design to knowledge about artists, styles and genres (p. 170), while learning THROUGH art provides mental abilities and abstract thinking: "…thinking dispositions that students

might acquire by involving themselves in the arts" (ibid., 2012,p. 170). We will elaborate on the concept of THROUGH by referring to Richmond's description of art's intrinsic value in education (2009): "Th ough insight into the aesthetic, students realize the inherent satisfactions in engaging with art, which can provide a deeper, more profound sense of value than those prevalent in a consumer society" (p. 104).

The aesthetic activities provide possibilities for aesthetic experiences, as described by Dewey (1980). According to his defin tion of aesthetic experience, time is required for refl ction, to make the experience mature and embodied, thus constituting a refl cted aesthetic experience: "Moreover, he has to see each particular connection of doing and undergoing in relation to the whole that he desires to produce. To apprehend such relations is to think, and is one of the most exacting modes of thought" (p. 47). We do not fi d that the students' experiences have gained structure and unity related to the aesthetic activities, as their descriptions of the aesthetic experiences were characterised by impulsive adjectives, not indicating deeper thoughts or conscious structures. When they describe a feeling of being in 'fl w' (Csikszentmihalyi, 2008), and their emotional attachment to the tasks, their refl ctions do not show the reconstruction of thought, or the ability to use terminologies connected to the aesthetic subjects. We see that the students enjoy being in dialogue with materials, and that it enhances the creative process, contributing with an interest to develop and explore new possibilities. The students easily distributed the work amongst themselves, revealing engagement and focus when making the deltas, allowing each one to make decisions and explore the potential of the materials. Many of them found inspiration by looking at others' work, and the creative process continued in dialogue with the materials and other students. The aesthetic dimension of cross-curricular work implies that the students must experience aesthetic work by observing and interpreting others' aesthetic expressions, as Sæbø (1998) describes her notion of aesthetic experience (p. 410). They must also practise their own modes of expression, by exploring techniques and being in dialogue with the material (including their own bodily expression). Th ough these experiences and practice, they will develop what Sæbø (1998) refers to as the aesthetic criticism (p. 414), an understanding of aesthetic work based on qualifi d arguments and terminologies, giving the teacher a chance to demand quality in aesthetic work, rather than just accepting it to be "a tool" for other purposes.

The students are mainly positive to the aesthetic activities, and we see that they have had a certain touch of aesthetic experiences in terms of emotional attachment and feeling of fl w. Dewey (1980) describes such experiences as "…inchoate. Thi gs are experienced but not in such a way that they are composed into an experience" (p. 36). The interviews reveal that the experiences of the students do not reach a higher refl ction, allowing them to achieve true aesthetic experiences, in the sense described by Dewey as "we have an experience when the material experienced runs its course to fulfilment" (ibid., 1980, p. 36). Th s could indicate that the aesthetic activities contributed to the acquisition of the overall teaching goals, and contributed to an embodied understanding, in line with Østern's (2019) description of in-depth learning, about the topic of sustainable development and Storyline as a teaching approach.

The four modes of learning in Lindström's model complement each other and are all important in order to achieve high quality in aesthetic learning processes (Lindström, 2012). In addition to the use of aesthetic working methods in interdisciplinary projects, where the aspects of learning WITH and IN art are strengthened, the students therefore also need to learn ABOUT and THROUGH art to ensure that all aspects are safeguarded. Th s requires further training in the aesthetic subjects' own context to ensure wholeness and quality, and to provide opportunities for progression and refl ction on the aesthetic learning processes according to Dewey's understanding of the aesthetic experience. The aesthetic subjects must therefore be strengthened as subjects with time and competence, as well as bringing aspects of them into interdisciplinary contexts. In this way, discipline and interdisciplinarity can be complementary and supportive: "Disciplines can encourage depth and technical mastery, while interdisciplinarity can provide for a broader perspective" (Fuller in Condee, 2016, p. 16).

Conclusion

In this chapter, we have analysed the quality of the aesthetic activities integrated in a multidisciplinary project, a Storyline. We found that it is important to give students opportunities to work from a concept and be able to express themselves in different types of media, in a media-neutral way, in order to stimulate creativity and exploration. These types of processes are closely related to interdisciplinary work, but this indicates that the materials and media used do not require a great deal of prior knowledge, or that the students have the academic knowledge in advance. We fi d that the aesthetic activities are experienced as meaningful and positive. The students were engrossed in the game, forgetting time and place, being in the moment. There is no doubt that the learning processes in relation to the overall goals; learning TSA and about sustainable development, were achieved more easily through the aesthetic activities and contributed to in-depth learning in the overall themes.

With this Storyline as point of departure, the art activities were means to another goal, and there was too little time to go in depth with the aesthetic issues. We fi d that to develop competence in aesthetic subjects and provide aesthetic experience, it is important to ensure that students both work in a media-specific way to become better acquainted with materials and techniques, develop skills, and be able to refl ct on their experiences and the potential of the media. It is important to ensure learning about the basics of art, from the elements and principles of design, to knowledge about artists, styles and genres (ABOUT art), and to develop thinking dispositions and refl ction in the art subject (THROUGH art). It is also important to let the students gain experience and time to dwell and refl ct on the work with the media. In this way, the basis for a completed aesthetic experience, being in the moment, can be assured.

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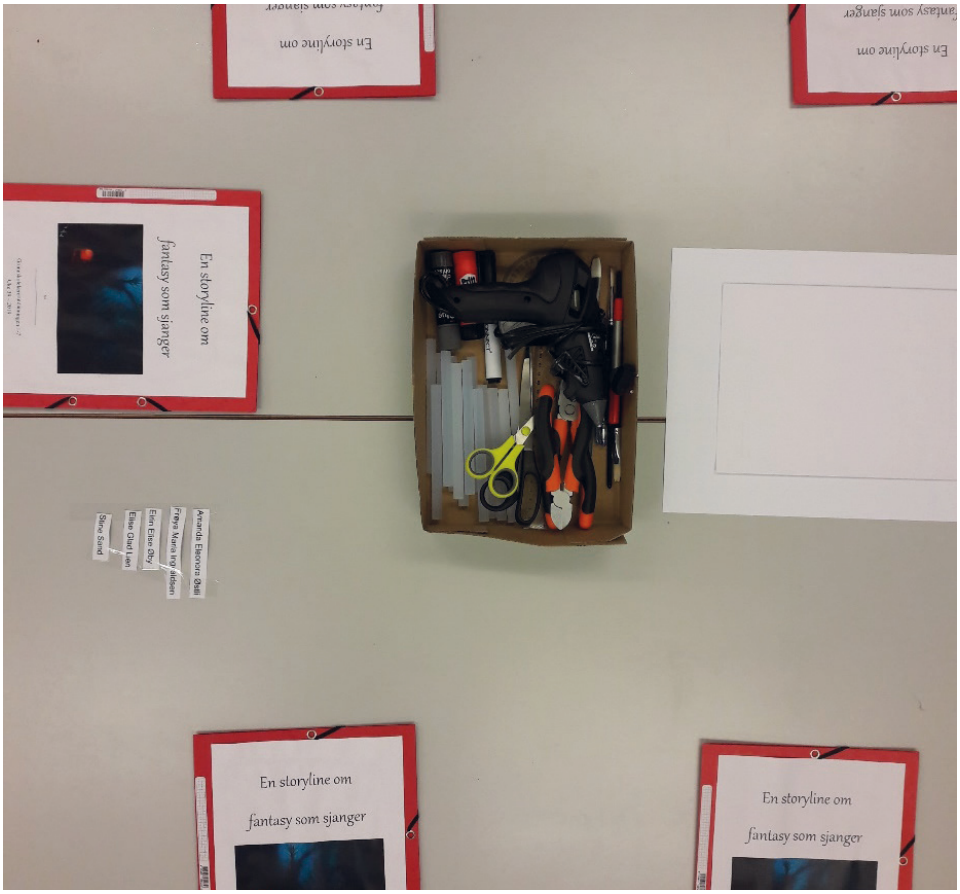

Image from the Storyline *Where good and evil forces fight for power* which shows how the desks were arranged ready for the Storyline. Photo: Kristine Høeg Karlsen.

Chapter 14

The Importance of Effective Questioning on Learning Processes in a Storyline

Carol Omand

Asking the right question may be the most important part of thinking.
De Bono, 1994

Abstract. Along the lines of De Bono, it can be said that questioning is fundamental to the Storyline Approach and at the heart of all teaching and learning. Th s practical chapter highlights how effective questioning encourages, supports, and sustains learners to think critically and creatively, solve problems, make decisions and use higher-order thinking skills. Central to every Storyline is the profound influence of Vygotsky's principles of active learning. Importantly, using Key Questions actively encourages, engages, develops and sustains the learning. Th s experiential learning has a direct influence on the learner when they take on tasks that they were unable to do before. Many examples combining theory with practice are presented and the results of implementing a whole school policy in questioning show that there were improvements in pupils' spoken and written abilities, thinking skills and concentration with more detailed and thoughtful responses. In conclusion, it is important to teach questioning at all levels as an integral component of teaching and learning.

Keywords: Questioning, Storyline, Thi king Skills, Creativity

Introduction

The Storyline Approach (TSA) is a pedagogical strategy for 'active learning'. In particular, it recognises the value of the existing knowledge of the learner. Questioning is fundamental to TSA and is at the heart of learning and teaching. Questioning creates dialogue with learners and serves many purposes. It engages students in the learning process and provides opportunities for them to ask questions themselves. It challenges their level of thinking and understanding and informs the next steps in learning and teaching. Effective questioning builds a partnership of mutual trust and respect. Th s chapter draws on my many years of experience of TSA as a practitioner, manager, lecturer in Initial Teacher Education, Storyline designer and writer. It combines theory with practice and illustrates the development of effective questioning in several Storyline examples and contexts.

Creating a Positive Learning Environment

In my experience, it is extremely important to create a positive learning environment for effective questioning to have the greatest impact on learning and in raising learners' expectations of themselves. Black and Wiliam (1998) state: "What is essential is that any

dialogue should evoke thoughtful refl ction in which all pupils can be encouraged to take part." (p. 12).

> "Right from the outset of any Storyline, learners are asked questions about what they already know, think, and understand. Their answers are valued, shared and constructive feedback is given, both by the teacher and their peers. Learners are encouraged to ask their own questions in a developing atmosphere of trust and mutual respect" (Omand, 2017, p. 6).

Th s is not a chance event, but is a conscious decision, on the part of the teacher in a nurturing role, to teach the learners how to value themselves and others, and how to give positive feedback as a means of promoting respect, thinking and questioning skills. Learners' positive self-esteem of their own learning and abilities is central in TSA.

I use the same concept when working with student teachers and teachers so that TSA becomes part of their holistic approach to learning and teaching and is implemented across all subjects of the curriculum. It is crucial that student teachers, themselves, understand and experience the role of questions before they use them in their teaching practice. I fi d these questions helpful to encourage learners' thoughtful answers: *What do you know? What else do you know? What can you tell me about…? Tell me one thing about …? I wonder if you could tell me a little bit more? What other facts do you know? I wonder if someone else has had the same or different experience? Why do you think…?* Th s is also echoed by (Dweck, 1986) who wrote that, "positive attitudes exist when children: believe that effort leads to success; accept that they have the ability to improve and learn; prefer and feel satisfi d on completing challenging tasks" (p. 1041). Tasks are made more challenging when questions encourage higher-order thinking skills such as problem solving, using the design process, decision making, and critical thinking, help prepare and equip learners for their future and the variety of roles they will have to play in their lifetime. "Effective questioning is about asking questions in a way that elicits maximum feedback, which can then be used to evaluate, plan and extend learning" (Assessment Reform Group, 1999, p. 4). That statement is at the heart of every Storyline.

The six sections in the chapter highlight the developmental stages I have used when teaching effective questioning in a Storyline to children, student teachers and teachers.

After the introduction, I develop the role of key questions in a Storyline. The next section describes how to frame and create effective questions. Following on from that, I introduce two examples of different types of questions. In the next section, I discuss pedagogical implications before suggesting ideas for Teacher Education and Professional Development. Finally, there are my concluding thoughts.

The role of Key Questions in a Storyline

Developing effective questioning is one of the most important features of every Storyline and takes the form of *key questions*. They structure the learning and sequence the episodes of the narrative of the Storyline. They are open-ended to provide opportunities for, and to encourage the learners to give, a wide range of responses.

> "Key questions present the children with a range of creative problem-solving activities that in turn require creative solutions and encourage children's higher-order thinking skills. They introduce exciting, meaningful and contextualised learning and provide opportunities for personal success, achievement and celebration. They encourage meaningful discussion and debate and, by careful scaffolding, enable children to become equipped to create and ask their own questions. Key questions provide opportunities to ask follow-on questions to seek further clarifi ation and understanding. They also allow children's responses to be considered thoughtfully and carefully and provide opportunities for constructive feedback from peers and individual feedback from the teacher. These responses help to inform and support the children's next steps in learning, encouraging meaningful discussion and exploration of a wider range of problem-solving possibilities and solutions. It is within these processes that children develop their own capacity for creativity, critical thinking, decision making, problem solving and higher-order thinking skills. These life skills encourage independence and can be transferred across the curriculum and utilised in other meaningful situations." (Omand, 2014, p. 5). (cf. key questions, Chapter 10, Sharon Ahlquist and Chapter 15, Ulf Schwänke.)

Key Questions and their role in Experiential Learning and Supporting and Developing Higher-order Thinking Skills

Key questions are, as mentioned, open-ended, and as (Clarke, 2001, p. 87) says, "allow for a range of responses and make progressive demands on children." In every Storyline, the key questions invite learners to be involved in an activity that will give them opportunities for experiential learning. For example, in *The Healthy Café* Storyline, the children are asked, '*What essential planning do you need to put in place for your Grand Opening event?*' The children then decide on the tasks they must do; make posters and invitations, create and design a menu, decide on who does what, work to a timescale. They are involved in many thought processes and solutions in order to achieve their goals. In a whole school *Space* Storyline, there was a technology challenge in every class. Senior pupils had this challenge: *Design and make a board game that uses a switch, a circuit and one other functioning element of your choice*. The learners discussed, problem solved and came up with a unique board game that fulfilled all of the criteria. On completion of the task, their peers then asked them a series of questions and because of their 'hands on' experience, the learners were confide t in being asked questions and in giving informed answers.

Key questions also play an important role in every Storyline to encourage learners' discussion. Crucially, they provide opportunities to think creatively (cf. creativity, Chapter 2, Margaretha Häggstöm and Katharina Dahlbäck, and Chapter 12, Marit Storhaug and Siv Eie) and offer a range of imaginative responses that, in turn, on many occasions leads to higher-order thinking. Learners are also engaged in experiential learning for a major part of every Storyline and this provides them with concrete evidence, to answer confide tly, any questions asked by their peers and to develop their own questioning capabilities. In the Storyline, *The Fairground*, the learners had been asked to design and

make a working fairground model. One of the working models was of a Ferris wheel. The team had worked well but there was insuffici t power to drive the wheel round. After discussion, some changes, and problem-solving solutions, the team was able to get the wheel to work. Th s concrete experience enabled them to answer confide tly the questions from their peers:

What was the most difficult part to make? How did you get the wheel to go round? What had been the problem when it didn't work the first time?

The questions the teacher asked when looking at the learners' models:

Why do you think …? Could you tell me more about …? In your opinion what is the purpose of …? What might an alternative be …?

Using some follow-on questions, the teacher asked the learners:

The mechanism you adapted is now very successful, what other uses could it be used for?

How will you record the results of this task so that it might be helpful for others? What in particular are you most pleased with? What do you think are the benefits of working in a team? What did you find out about yourself as a learner?

Bloom's Taxonomy (1956), offers an important framework for teachers to focus on higher-order thinking to inform their questioning skills.

The Role of Key Questions in Creative Thinking, Improving Problem-Solving Strategies and Extending Thinking Skills.

Using the child's experiential learning in TSA and the concrete evidence; for example, learners' working models, structures, figu es, creatures, habitats, objects, paintings and plans, the teacher, using effective questioning, encourages each child to develop their creativity, problem solving, and thinking skills. Vygotsky (1978), argues that learning happens through our social interactions, and thus is dependent on experience. The learners are further challenged by working to meet the demands of criteria in several problem-solving activities. They are encouraged to set their own goals and strive for personal best. The teacher uses a range of analytical questions to support and encourage the learners' thought processes and answers. The following questions have arisen in the classroom during problem-solving activities from several Storyline topics: *The Fairground, Natural disasters* and *The New Company.* The questions are asked by the teacher but can also, with guidance, be asked by learners of each other and serve the following purposes;

Encouraging refl ction.

'*Why did you decide to make it that way?*' '*Tell me about the materials you used and why you chose them?*' '*From your experience, was there anything missing in order for you to*

make the best job?' 'What do you think would be the best way to explain the problem-solving process to someone else?'

Providing opportunities for cognitive thinking.

'What was the most important thing you learned and/or found out from the task you have just completed?' 'Take me through the order in which you did things.' 'What do you understand by…?' 'If you were going to make this again what would you do differently? Why?' 'How would you simplify the task for younger learners?'
'How could you make the task more challenging?'

Encouraging problem solving.

'In terms of producing more items quickly, what shortcuts could you take without altering the quality of the finished product?' 'What problems arose that you hadn't expected?' 'Choose one and tell me how you solved it.'

Promoting higher-order thinking skills.

'When you found out you had to make a number of items to sell what was your initial thought?' 'Having made all of the items and sold them, what are your thoughts now?' 'What would your advice be to others facing a similar task?'

All of these questions provide opportunities for the learners, individually, in pairs, and in groups, to build on their existing knowledge through experiential learning. As illustrated, the role of the teacher's effective questioning is crucial in supporting, encouraging and building learners' self-esteem and improving confide ce in their abilities.

The Role of Key Questions in Developing Critical Thinking

Effective key questions in a Storyline are central to developing learners' critical thinking skills. In their research, Haynes and Bailey (2003, cited in Snyder & Snyder, 2008) emphasised the importance of asking relevant questions to stimulate students' critical thinking skills. Browne and Kelley (2014) also focused on integrating questioning techniques into class discussions to support an educational environment where students can demonstrate and practice critical thinking skills. They also documented the premise that students' critical thinking is best supported when instructors use critical questioning techniques to engage students actively in the learning process. Sample questions from all these studies include the following:

'What do you think about this? Why do you think that? What is your knowledge based upon?

What does it imply and presuppose? What explains it, connects to it, leads from it? How are you viewing it? Should it be viewed differently?'

These questions give students opportunities to evaluate and question their thought processes, the breadth and depth of their thinking and begin to think about their thinking.

Framing and Creating Effective Questions

'Asking a question is the simplest way of focusing thinking. Asking the right question may be the most important part of thinking' (de Bono, 1994, p. 79). It is important right from the outset to frame key questions.

> "Each episode raises key questions, designed to focus the children's attention and help them explore curricular issues. The key questions access what the children already know or believe about the topic, establish possible links between different knowledge domains, raise doubts or questions, and promote creative thinking through brainstorming or mind-mapping. In this way, they ensure that children's prior knowledge is acknowledged and respected and give a sense of ownership and personal involvement. The collective intelligence of the class often turns up a surprising amount of information that helps teachers gauge future teaching content and pace and provides information that helps situate future learning and link to existing knowledge" (Bell & Harkness, 2006, p. 10).

Teaching Learners about Effective Questions

One of the most important skills that learners experience in TSA is how to design and ask their own questions. The teacher supports them in acquiring these new questioning skills by using supportive scaffolding techniques. According to Bruner (1986), when children start to learn new concepts, they need help and support from teachers or other adults. To begin with, they are dependent on adult support but, as they become more independent in their thinking and acquire meta skills and knowledge, the support can be gradually withdrawn. According to Feuerstein (2015), all learning interactions can be divided into direct learning and mediated learning. Learning mediated by another human being is indispensable for a child because the mediator helps the child develop prerequisites that then make direct learning effective. For example, the teacher might ask the class: *How many different ways can you present your work for the final exhibition?* The children discuss their answers in small groups or pairs. Collectively they present their ideas. These represent a wide, creative set of responses. The children also ask their peers questions: *How did you decide on the content of your presentation for the exhibition?*

The Healthy Café Storyline – Children's Questions

The Healthy Café Storyline was developed by one of the teachers in my school as part of our Health and Wellbeing programme of study. The children learn to put their skills into practice by engaging with this purposeful context.

The planning grid for *The Healthy Café* Storyline demonstrates how the children's effective questioning developed their ideas, creativity, thinking skills, problem solving, life skills, knowledge and understanding. Th s example highlights the importance of the teacher taking time to listen to children's questions when seeking clarifi ation. It shows how mutual respect is developed through constructive peer questioning and interaction. It also emphasises that the Storyline has provided a meaningful context in which learners have opportunities to ask and answer questions and can engage with one another in a purposeful manner.

Tab. 1: Teacher's Key questions and children's questions

Storyline	**Teacher's Key questions**	**Children's questions**
As part of a healthy living programme, people are looking at what makes a healthy café.	*What is a café?*	*Is a café like a restaurant? Does it just sell snacks? Are there any healthy cafés near us?*
The essential features of a café. *The teacher had expected the usual feedback but was unprepared for the children's response.	*What does it need to have in it?*	*Will there be hot and cold food? Is it going to be a big or small café?* **As we have someone new in our school now who uses a wheelchair, we will need to make sure they can get into the café safely and easily. Will it be alright to ask them about it?*
As a result of the children's input and questions, they changed their initial designs for the front entrance to their classroom café.	*What will you need to do to make sure the access will be wide enough? What materials do you think you will need to use? How will you know if the access is successful?*	*How will we build the wheelchair access so that it's safe and strong? The slope can't be too steep, so what can we do about this?*
Th s also prompted the teacher to introduce additional targeted key questions to develop the children's ideas.	*How will you test it safely?*	*How will we test it safely? Will we test it with the person in it or will we test it first with an empty wheelchair?*
The children also responded with additional questions that developed their ideas, thinking skills, problem solving and understanding	*Can we ask…to drive the wheelchair through to try it out?*	*It's an electric wheelchair but do we need to have another person there just to steady it through the entrance to make it even safer? We need to ask (the child) how he will feel.*

Storyline	Teacher's Key questions	Children's questions
Job applications The children have opportunities to look at application forms for other jobs. They carry out research. Individually they think about the job they would like to do, write down their skills and the reason they would be good at the job. Another member of the class looks over their application to see if there is anything that they have missed or anything that might improve their application. The child's partner helps them through the process by asking questions that relate to their own experience. All children have previously carried out work on giving positive, constructive feedback to their peers and others.	*What job would you like to do in the café?* *Why?* *What skills do you have that would make you the best person for the job?* *How can you help each other?*	(The child as an applicant) *Are skills just like the things you are good at?* *What skills will I need to be a manager?* *What is it that I do at the moment that will help me in this job?* The child's partner looks through the list of skills the child has identifi d. *A good timekeeper well prepared, a good team member, a strong voice.* *When you are getting ready to play in a match what do you do?* *What skills do you use there that would be useful in this job?* *When you meet with the pupil council how do you get your ideas across?* *How will that be useful in this task?* *You are really good at helping people too. That's useful.*

During this process, children are developing a richer and deeper understanding of themselves, others and the world around them. It also promotes children's involvement, independence, interdependence (cf. interdependence, Chapter 1, Kristine Høeg Karlsen, Heidi Remberg, Ellen Høeg) and develops an ability to explain things more clearly. It helps develop refl ction and evaluation of their own learning. Th s example highlights one of the characteristics that Alexander (2006) identifies in dialogic teaching:

> "Dialogic teaching is indicated by: Teacher-pupil interaction (for example in whole class teaching and teacher-led group work) in which: Individual teacher-pupil and pupil-pupil exchanges are chained into coherent lines of enquiry rather than left stranded and disconnected. It illustrates the partnership, trust and respect of teacher-child within the classroom." (p. 41).

I use this example for student teachers to highlight the importance of their interaction and valuing children's contributions.

Different Types of Questions in a Storyline

It is important for the teacher, when writing a Storyline, to consider the range, variety and balance of types of questions that need to be planned. Hastings (2003) states: "Learning to recognise various types of question and the function they serve is one of the keys to effective questioning." (p. 2). It is also most important to recognise the influential role that effective questioning plays in the learning process in promoting and engaging learners in meaningful discussion. The kinds of questions the teacher asks will determine the level of thinking skills the learner develops. Claxton (in Hastings, 2003) states that: "Good learning starts with good questions, not answers." (p. 2). The key questions in a Storyline must demonstrate a range of different questions and provide opportunities for learners who require more thinking and encourage responses that are more thoughtful.

Authentic Questions

Effective questions have to be authentic.

> "authentic questions are those for which the teacher has not pre-specifi d or implied a particular answer. These are contrasted with the much more common test questions in which the teacher retains absolute control over the answers and therefore in the direction of the interaction of which individual questions and answers are a part. Authentic questions are defi ed here as dialogic because they signal to students the teacher's interest in what they think and know not just whether they can report back what someone else thinks or has said." (Alexander, 2006, p. 15).

Follow-on Questions.

It is important for teachers to ask and encourage children to ask follow-on questions. These are useful to seek further clarifi ation, to help understanding, to promote creative responses, to encourage higher-order thinking skills.

Tab. 2: Teacher's key questions and children's questions and answers

Storyline	**Teacher's key questions**	**Children's questions and answers**
*Creativity Week	*What will your week look like?*	*We'll need to discuss it and get everyone's ideas. How long do we have to let you know?*
What the week might look like.	Teacher's follow-on questions	Children's follow-on questions

Storyline	Teacher's key questions	Children's questions and answers
The detailed discussion and planning that followed.	*What is it you want to do/ have?*	*In small groups children discuss:*
	What will you have to do to plan for the whole week?	*Why do you want to do…?*
	Remember that you need to use recyclable materials and reuse items as much as possible.	*Could we have painting and music on one day?*
	What materials will you need?	*Do you think we'd be able to buy some things as well as using recycled materials?*
	Where will you get them from?	*Do you know anybody who could teach us to play the drums?*
	Do you think people in the community might be able to help?	*We need to have a plan for each day.*
	Who will you get to do the workshops? How will you organise that?	*What's the best way to do that?*
	Will everyone in the class do the same workshops?	*Should we have groups to organise different areas e.g. art, music, outside things?*
	Will they all be inside?	*We'll need to write some invitations, who will do that?*
	What help do you need?	*We'd love to make a documentary. How do we do that? Do you think we could find someone to help us?*
	At the end of the week, how will you show to others, what you have been doing? a celebration?	*We need to write notes to help us for next year and maybe keep a diary.*
	Who else might you invite?	*What kind of celebration should we have?*
	How will you thank the people who have helped?	*Who will we invite?*
	How will you record all that you have done and achieved?	

*Creativity Week was part of a whole school initiative focused on closing the attainment gap by being 'Determined to Succeed through Creativity and Ambition' emphasising the use of recycling materials

Purposes of Effective Questioning

When writing effective questions, it is necessary to establish their purpose. Here are some thoughts I keep in mind: *What type of questions will motivate and sustain learners' interest and engagement? How will a rich learning experience for the learner be ensured? What type of questions in particular will promote discussion and debate? How will open-ended questions for the learner provide opportunities for a wide range of responses? What scaffolding opportunities will help the learner recognise the function of different types of questions and develop their confidence in asking, and answering, different types of questions?* These questions help student teachers and teachers to clarify the purpose of effective questioning and to recognise the importance of teaching questioning as a fundamental component of teaching and learning.

Pedagogical Implications

Questioning is a crucial pedagogical skill. It is an integral part of classroom practice. Many studies highlight the importance of questioning methodology and provide a wealth of information to extend and improve learning and teaching. Th oughout this chapter, I highlight the importance of teaching effective questioning. To improve pedagogical practice in my school, we incorporated a number of strategies to improve questioning skills, of both staff and pupils. I have selected two of these; the importance of 'wait time', and, 'encouraging understanding and transfer of skills'.

The importance of 'Wait Time'

Black and Wiliam in (Clarke, 2001) discuss the importance of 'wait time,' sometimes known as 'think time' and suggest, "give pupils time to respond: ask them to discuss their thinking in pairs or in small groups so that a respondent speaks on behalf of others." It is important to allow learners opportunities to think through their answers carefully and ensure they know that 'wait time' or 'think time' is what is expected and indeed is necessary to develop their thoughts. Extending the time learners have to respond by three to five seconds can make a substantial difference to the quality of the response. It "can also lead to more children being involved in question and answer discussions and to an increase in the length of their replies," (Black et al., 2002, p. 6).

Using 'wait time' can enable the learners to sort out and order their thoughts, give a more thoughtful response, and give a more creative response. It also can reduce the number of learners who say they don't know the answer. Having given the learners 'think time,' it is very important for the teacher to give suffici t time to listen carefully to the learners' answers to give the most appropriate and supportive feedback and is particularly important for critical thinking. "Research on questioning methodology also suggests that instructors should wait for student responses. Thi king requires time and patience. Give students the time they need to think critically" (Browne & Kelley, 2014, p. 8).

Encouraging Understanding and Transfer of Skills

In the Storyline, *Our Local Native Woodland,* the children are investigating and exploring ways to improve their local woodland. As part of the introduction to the Storyline a letter arrives from the local forestry manager. In the letter the words *conservation* and *sustainability* appear. The teacher asks this key question: *'What do you understand by these words, conservation and sustainability?'* The children are asked individually to write what they think each of the words means. Their answers are shared with the others in the class. After some lengthy discussion, a class defin tion is agreed and displayed in the classroom. The children also write the defin tion into their personal log books (work books) and add their own ideas about what conservation and sustainability means for their own local woodland. When the local forestry manager came to visit, the children explained their defin tions. It was clear when they answered that they were able to display a deeper understanding of the meaning and, importantly, the relevance to their local environment. The children, using additional key questions, were also able to transfer this prior knowledge to a more general discussion about conservation and sustainability in the wider context. One of the key principles of TSA is that the learners feel a true sense of ownership, involvement and responsibility for what they do and are thus truly engaged in the whole learning process. Some of the additional key questions:

Why do you think conservation is important for our environment and our world?

Why do you think sustainability is important for our environment and our world?

What do you think might happen if we don't do something about this?

What do you think we should try to do? Who might help us?

In this example, the teacher is constructing questions that not only promote thinking skills but also help learners to explore individually and collectively and to fi d a deeper understanding. As a result, they are more confide t in their understanding and they are then more able to transfer and apply this understanding to another similar, different, or wider context. In this carefully supported process, the learners gain confide ce and willingly contribute to other questions that arise in different learning situations.

Reviewing and Evaluating a Child's Learning Experience

In this review and evaluation process, the child is presented with questions that they can build into their own questioning repertoire. It is also a valuable process in helping support them when they design their own questions for their evaluation sheets as part of a personal project or for another task. The teacher discusses the answers with each child and then the evaluation is added to the child's personal learning plan. The feedback is also very useful for the teacher as part of ongoing personal refl ction and evaluation, in light of the children's responses, to note any changes they may wish to make to the Storyline. It provides useful feedback, too, for informing the next steps in learning and teaching.

Tab. 3: The Fairground design and technology task

Storyline: *The Fairground* design and technology task, age 7–11	
Name:	**Class:**
Evaluation of design and working model	**Child's comments**
What was the best thing about working in a team?	
Did you find this task easier or more difficult than the last one? Why?	
What useful new skill have you learned? Give another example of where you might use it again?	
What solution did you suggest for the 'wheel' problem?	
What are the main ideas you will want to get across to others in your presentation?	
What was your best achievement in this task?	
What do you want to know more about having completed this task?	

Teacher Education and Professional Development

It is vitally important to teach, support and develop the questioning skills of all teachers, from initial teacher education and all through their teaching life as part of the teacher's 'toolkit'.

The following is an extract that I used in a workshop for second year student teachers. The main objective was to provide a context that would give them opportunities to develop effective questions. At the outset of the workshop, some students were a little hesitant to ask questions or contribute their ideas. However, as they became more involved in the activities, they were able to talk and ask questions of each other, about the characters, the models, and items that they had made, in exactly the same way as children do in class.

Experiential learning had provided them with opportunities, not only to become familiar with TSA, but also to ask and develop questions and build their confide ce for their forthcoming teaching practice. The subsequent workshops built on this experience and offered support in planning an effective questioning strategy and using a variety of questioning techniques.

Tab. 4: Storyline: *The Castle* – illustrating context and key questions

Storyline	**Key Questions**	**Storyline**	**Key Questions**
1.Setting the scene		**2.The castle**	
The scene is set with some medieval music playing quietly in the background. Some artefacts arrive wrapped in an old cloth or in an old box. The teacher tells the learners that they are going to be history detectives. You have to use the clues of the object to try to help you fi d out the answers to the following questions.	*What material is your item made from?* *What do you think your item might be?* *Who might have used it?* *Where do you think it has come from?* *How old do you think it might be?* *What do we use or have today that is similar?*	It is established that the artefacts have come from a castle with local historical importance or signifi ant in historical terms.	*How would you describe a castle?* *Give a reason for why you think it had to be built?* *What decisions do you think they had to make before they built it?* *What materials would they use?* *Where would they get these materials?* *What special features might it have?*

Reviewing and discussing their individual learning journey, as captured in their personal learning logs, emphasised how their knowledge and techniques had improved and provided a powerful summary and record of their individual progress.

Professional Development

The following examples illustrate a range of materials for teachers and learners to support and develop effective questioning.

Tab. 5: Examples of a teacher's questioning repertoire in a Storyline.

Open-ended questions *'What might happen if …?'* *'Is this true in all cases?'* *'What do you think about …?* *'What other solutions might there be?'*	**Closed questions** (used mainly for recall of facts or simple comprehension) *'What is 3+7?'* *'How many days are in a week?'*
Making a suggestion *'You could try …'* *'Have you considered …'* *'What about …?'* *'Sometimes it's useful to …'*	**Expand an idea** *'Could you tell me more about …?* *'What made you choose …?'* *'Why did you attach the … here?'*

Using prompts (displayed on wall) *'Have you remembered to …?'* *'Check your work against the criteria.'* *'Did you get the results you were expecting …, if not why not …?'*	**Elaboration** *'After that what did you do …?'* *'Explain in your own words …'* *'I like what you did here, tell me more about it.'*
Reflection *'Do you remember when …?'* *'When you made … what solution did you come up with? Might that be helpful here?* *'Check back at what you did with … I think you will find that useful.'* *'Ask someone else who is doing the same task.'* *'I am sure you said … That would be very useful here*	**Checking for understanding** *'Tell me how …?'* *'Is this the complete sequence?'* *'What do you understand by …?'* *'Tell me what this means in your own words …'* *'Explain your experiment/findings to someone else.'* *'Could you give me some more detail …?'* *'Why did you come to that conclusion?'*
Extending thinking *'What is the most important message you want to get over?* *'What is the difference between …?* *'What is another way to look at it?'* *'What would be another example …?'* *'What do you think …?'*	**Follow-on** *'That is a good idea, now what will you do …?'* *'Yes, that's right but what about …?'* *'Taking into account … what's the next step?*
Checking for clarification *'Can I just check that …?'* *'Are you clear about …?'* *'Summarise for me, in your own words the main focus of today's lesson.'* *'What was the outcome of the experiment? Did that surprise you? Why?'* *'After you read the article, I would like you to summarise, in your own words, the main points.*	**Echo** *'I remember you said …'* *'I see, you think that …'* *'What you said about … is very interesting …'* *'What ideas have changed since you first spoke with me …?'*
Offering some information *'It might be helpful to know that …'* *'… came up against the same problem. It might be useful to discuss it with them.'* *'There's some good information about that in …'*	**Encouraging** *'You have made sure you …'* *'I can see that you have met all of the criteria.'* *'What, in particular, are you most pleased with?'* *'You have lots of good ideas.'* *'I see that you have taken great care over …'*
Analytical *How might you explain why this happened?* *How can you support your opinion?*	**Evaluative** *What makes this a successful model?* *Compare this solution to … What are your thoughts?*

Observation and Feedback

As part of their professional development, teachers designed an observation sheet to help them give constructive feedback to their colleagues. The feedback was then used to acknowledge good practice and support and promote effective questioning across the curriculum and throughout the school.

Tab. 6: Self-awareness and improving questioning techniques – observation feedback sheet

Observation sheet for effective questioning	Date: Teacher: Class:
What were the key questions in the lesson?	
Give an example of a question that asked children to follow instructions.	
Give an example of a question that made children think.	
Give an example of a child asking another child a question.	
Give an example where a follow-on question was used: • to clarify understanding • to elaborate • to promote discussion	
Give an example of a question used in the plenary.	
Comment on the range of questions.	
Comment on the effectiveness of 'wait time'.	
What was most successful in the lesson?	

I have also used this observation sheet in workshops with student teachers.

A Whole School Approach to Effective Questioning Using Storyline

As part of our whole school initiative for closing the attainment gap, we decided to look at the possibility of introducing TSA to every child. In our school, I was the only teacher trained in TSA. I used my class to model the approach. I also worked with other colleagues and encouraged them. Staff gradually grew in confide ce and every teacher became more involved. TSA began to develop in every classroom. I provided staff d velopment on the background, the philosophy and the key principles of TSA.

I worked with other members of staff on beginnings, middles and endings of Storylines and in partnership began to implement TSA in their classes. Th s was not an overnight process. Over several years, each staff member grew in confide ce and some were very keen to write their own Storylines with support. A staff development programme enabled teachers to work on the following: *Why effective questioning is important in learning. Key questions and their purpose. Questioning throughout a Storyline and impli-*

cations for other areas of the curriculum. Is questioning as effective as it could be? If not, why not? Developing the Storyline. Review, evaluation of practice, and identification of next steps

The teachers recognised the importance that effective questioning played in children's learning. With the opportunities for experiential learning and associated questioning possibilities, teachers were keen to develop their own practice further. Teachers at every stage in the school implemented Storylines. Some members delivered staff development to neighbouring schools, some at local authority level and two at an international conference. The school gained an excellent reputation for the quality of the teaching, its child-centred approach and the innovative learning opportunities it provided for every child.

Results of our Whole School Approach

The children became more confide t and thoroughly enjoyed their learning in the exciting, creative and supportive environment where each felt valued. Teachers observed that the climate was conducive to asking and answering questions as part of the normal daily routine and that 'wait time' improved the length and detail of answers. Th s was evident in all areas of the curriculum and learners were supported and encouraged to transfer their skills across subjects, for example, from technology to design. The questioning techniques and strategies learned and used in a Storyline became familiar and transferred easily to all other aspects of the curriculum. For example, problem-solving strategies and investigation techniques used in mathematics could also be applied to science, outdoor learning, art and design, technology and music. The school; learners, staff, parents and carers, developed a 'can do' attitude clearly evidenced in science, technology and mathematics challenges. Learners all benefitted from raised self-esteem and enjoyed involvement in celebrations of achievement throughout the school and nursery.

The implementation of 'wait time' and other strategies had effects beyond mere increased participation and enjoyment. Learners' higher-order thinking skills and concentration improved and as a result, they were able to offer much more thoughtful and detailed responses. There was concrete evidence in both their spoken and written abilities. Their questioning skills improved as demonstrated by their ability to ask and answer questions confide tly. Teachers found that their experience of learning about, developing and implementing effective questioning strategies in a Storyline also improved their questioning and general teaching ability across all subjects.

Concluding thoughts

With the importance of effective questioning, not just in TSA, contributing so visibly to learning, it is not something that can be left to chance. There is a collective professional responsibility to ensure that it is an integral part of student teacher and teacher training and professional development. Initial teacher education can play a vital role in ensuring that effective questioning is taught and embedded in all course work. In my experience,

questioning is a skill that needs to be taught. It can be developed from quite simple interactions to ones that are more complex. It requires skilled planning to ensure that a range of different question types is used. Teachers also need to plan their own questioning strategy and be prepared, because of answers to 'open-ended' questions, to develop tactics on the spot. For this reason, I included a section on Professional Development with suggestions for teachers and student teachers for learning about and improving their questioning skills.

Where a school has implemented a whole school policy on effective questioning, not just in a Storyline but also across the curriculum, the impact and quality of learning and teaching is signifi antly improved. The interactions of teacher and learner encourage deeper understanding and there is more involvement and engagement in using higher-order thinking skills. In my experience, the learning environment becomes a place where exciting, creative, and interdependent learning and teaching takes place and learners develop a sense of curiosity and ability to ask their own effective questions.

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Chapter 15

Storyline and Ideology
How to Avoid Manipulation in Teaching

Ulf Schwänke

Abstract. The objective of this chapter is to discuss whether The Storyline Approach (TSA) can be used to manipulate students. The headline question is 'Can teachers exploit TSA in order to influence students' beliefs without giving them opportunities to elaborate views of their own?' The chapter explores the founding principles of TSA and compares these with educational approaches which influence learners without their awareness of, or conscious control over, the process. It is argued that teachers and students who use TSA will, in most cases, avoid the risk of manipulation given that TSA promotes active learning, awareness of the process and autonomous thinking. Conclusion: If TSA holds true to its principles it offers an educational approach that raises students' awareness of manipulation, helps them to resist it and become collaborative self-confide t learners.

Keywords: Principles of Storyline; manipulation of student's views; ideology; self confide t learning

Introduction

Most teachers who use TSA as a teaching strategy do so because they are convinced that it is, fi st and foremost, an effective strategy. Students who are guided by a meaningful story do not simply proceed ritually through a body of content. Instead, they learn autonomously while tackling problems, discussing difficult tasks, creating models, browsing books or the internet, co-operating on a variety of other activities. In doing so they construct knowledge and generate an understanding of more or less complex issues and interrelationships. While they are clearly learning they are not only enjoying the process and the outcomes while becoming more autonomous in the process. So, over the course of engagement with Storyline students' motivation grows rather than declines making TSA a powerful pedagogic tool. But if it is powerful – may it also be dangerous? Can it, for example, be used as an instrument of manipulation? Th s question fi st arose at a Storyline-conference in 2010 and still remains unanswered: Can you use TSA to impose opinions, or even prejudices, on learners?

The purpose of this chapter is to provide evidence that TSA cannot (or should not) be used to manipulate students so as to make them accept specific ideas or beliefs without the opportunity to develop, and elaborate, a view of their own. Starting with the discrimination between manipulation and influence this chapter discusses the constitutive principles of TSA and ways in which they support self-reliant learning.

Manipulation or Apparent Influence?

Manipulation originally meant doing something with your hands as, for instance, using a tool. But over time the central meaning of the term has been narrowing to denote something being done in a way that escapes others' attention. Sorcerers are masters of manipulation, pulling a rabbit out of a top hat or a coin from your nose. Psychology uses the term 'manipulation' figur tively for purposeful and *hidden* influence in order to control experience and to change the behaviour of persons and groups through inimical or deceptive tactics. Denying this defin tion some authors (mainly trainers who are using NLP-techniques) assert that there is nothing wrong with manipulation. They argue that every boss tries to manipulate his subordinates and that most spouses attempt to manipulate one another. Such a view does not, however, discriminate between influence and manipulation. But this distinction is crucial. If I influence someone, the affected person notices that I am interested in convincing him or her, giving reasons that might be accepted as substantive. If, on the other hand, I attempt to manipulate, I try to hide my intention; I don't want the other persons to realise that I am trying to impose a particular viewpoint on them.

In everyday life manipulation is a frequent occurrence although we don't always realise it. Advertising and commercials influence us to buy things that we do not necessarily need. On the internet, for example, one has often to agree with the terms and conditions of business in order to gain access to software packages or to important information. Perhaps, of course, you belong to the minority who read 200 pages of legal text before ticking the box. So, you might ask: What is wrong with convincing, perhaps even, manipulating students? Isn't that what school is there for? Shouldn't the younger generation share the convictions of the majority? Thi k for instance of denominational schools. Isn't it the vested right of parents to decide on the religious beliefs that their children should hold? And what about the pride in one's own nation? Should that not be supported by school? Aren't many students simply too young to understand the complexities of modern life? So, shouldn't we use all the ploys we know so as to help them become adults who then fi d their place in the society into which they are growing up? Probably quite a number of politicians would patently agree. So, we do have reason to ask: Is TSA an appropriate instrument as a form of manipulative indoctrination? May it easily be used for some sort of brainwashing? Is it a lever to legitimise a totalitarian system? The following example illustrates how Storyline-techniques might be used wrongly in an authoritarian society.

A fictitious example

As a German citizen it would be inimical to lay the blame on people from other countries ruled by 'strong men'. Looking back on the history of my own country – Germany in the 1930s, a decade before I was born, a time in which Germany was governed by a fascist regime led by an uncompromising dictator. Everything was regulated in a totalitarian way by the 'National Socialists' – the Nazi party. There was no freedom of speech, no opportunity to express dissenting opinions, while even the private life of citizens was

Img. 1:
Photo: Ulf Schwänke

monitored by the state and the party. Jews who had lived for generations as Germans were suddenly regarded as enemies of the people. Most of those who weren't able to leave the country in time were later victims of the holocaust.

The educational system in Nazi Germany was tightly supervised. Looking back at this totalitarian, indeed criminal, regime we might well ask: Would Nazi-teachers not gladly have used TSA to persuade their students of the predominance of the Nazi ideology? For instance, there could have been a Storyline about building a future capital for the German 'Reich'. Maybe some Nazi teachers would even have fantasised about building a wall to keep people from other nations out.

Imagine a German teacher in the year 1935. She announces that there will be Olympic Games in Berlin (in reality they were held in 1936 and used to support the Nazi ideology). First step of the Storyline: Every student has to create a person to represent a member of the planning board. What if a student creates a collage figu e with black hair (see picture 1)? Will the teacher accept it, or will she allow only 'Aryan' people to be in an elevated position? And if students had come up with collage figu es of women? The teacher might well have rejected the idea since, according to Nazi ideology, women had to stay home looking after their children. The next steps of the Storyline might have been painting a frieze, designing an outfit for the athletes, building a box model of the stadium, writing a list of Olympic disciplines and so on. Wouldn't that have been a compelling Storyline? It would appear to look that way. And, as the examples cited demonstrate, it could have been used for manipulative and doctrinaire purposes. Fortunately, perhaps, TSA had not been invented at that period of time, yet authoritarian approaches to education may still be observed in some places. Imagine, for instance, a teacher attending a Storyline-conference who congratulates herself, "At last I have found an instrument to lead students up the path that is best for them. That's the reason why I use TSA. It works so well. The students come to believe everything that the story contains and conclusions to which they are led." Do we accept this teacher's view? Do we agree with her? Or do we argue that this is not the nature of teaching that we think of when we talk about TSA?

TSA Is Not Consonant with Manipulation

There is a case to be made that *if TSA is used for manipulative purposes, it would no longer be the approach generally associated with the term Storyline*. Although it might be said that this is just a personal opinion and that there are teachers likely to hold different views, how might I argue for the validity of the above thesis? Th s requires a reminder of the essential principles of TSA and of the basic conventions of teaching and learning associated with this approach (see table 1).

- Teachers use *key questions*.
- They promote the student's *ownership* of the story.
- *Mutual Respect* between teachers and students is seen as an important condition of successful learning.
- There is *Openness* to the student's ideas as to the topics of learning.
- The use of *creative techniques* is an essential part of learning with TSA.
- *Collaborative cooperation* among students is genuinely supported.
- Teachers using TSA see *learning as a process of active acquisition* – not simply parroting, or uncritically absorbing, the teacher's standpoint.
- And, not least, teachers using TSA believe that students – in common with all men and women – are human individuals with *inalienable rights*.

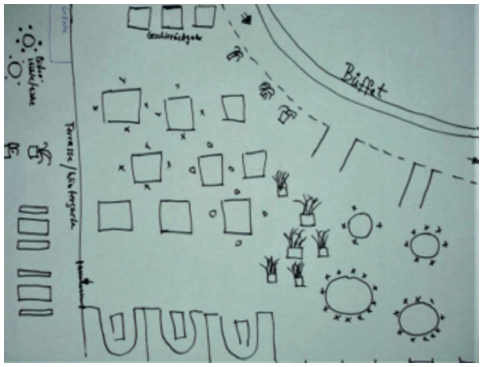
Tab. 1: Some core principles of TSA

• Key Questions
• Ownership
• Mutual Acceptance and Respect
• Openness
• Creativity
• Cooperation
• Learning as active acquirement
• Idea of man (human rights)

These principles are mentioned – in one form or another – in all comprehensive descriptions of TSA (see e.g. Bell, 2005, Bell & Harkness, 2006, Falkenberg & Håkonsson, 2002, Letschert, 2005, Schwänke, 2018, Vos & Dekkers, 1994). Let us examine these traits in more detail.

1. Key Questions

A teacher using TSA asks key questions – these are real inquiries, not questions to which the teacher already knows the answer. A key question is always an open question; the teacher genuinely wants to fi d out what students think, what they imagine. She is not interested in hearing the one and only 'correct' answer (see Vos & Dekkers, 1994, part 2, p. 59–69). "Who is the president of France?" for example would not qualify as a key question as it simply asks the student to recall a name. The student need not even know what a president is. A key question in contrast could read: "What do you think



Img. 2:
Photo: Ulf Schwänke

will happen, if the French president announces that France will leave the European Union?" Such a question requires students to think in many different ways. They have to use their knowledge about politics and look ahead as to what might happen. They have to imagine what the French president's objectives might be and they will also start to think about advantages and disadvantages of a 'Frexit'. So, a key question is whether or not students are able to develop their own thinking, to test their own ideas and, preferably, to discuss and then test them with others. A teacher who uses key questions wants to hear different opinions and well-considered arguments. She will not say "right" or "wrong" but for example, "Can you explain this in more detail?" or, "What might happen, if you do…?" or, "What makes you think that?" The teacher is interested in the student's thinking and conceptual development. She accepts and respects the student's views and is open to new ideas. In short: Key questions support critical and independent thinking – the signal enemy of totalitarian brainwashing, see also Chapter 14 about key questions, by Carol Omand.

2. Ownership

Teachers with faith in TSA respect the principle of ownership. It means that – even although the story on which teaching is based was originally invented or related by the teacher – students take part in developing the story step by step (Bell & Harkness, 2006, p. 38). As an example: A class of unemployed older youths created the model of a job centre – a place where you normally have to wait for quite some time to be attended to. The students had designed collage figu es (unemployed people and staff of the job centre) and were planning a model in a box of the job centre building. They all agreed that long waiting hours at the job centre was an ordeal for everyone. So, in small groups they worked on the layout of a congenial waiting zone. Their fi st drafts refl cted somewhat conventional ideas. However, while working further on the ground view, more and more ideas began to emerge. One model provided more comfort with a cafeteria and a conservatory (see picture 2). Another group of students came up with the idea of a waiting zone with a lawn in which people could sit on the grass or even walk around barefoot (see picture 3). And as students from another group challenged them about the vagaries of weather, they constructed a removable glass-roof that could be closed in order to keep out rain and snow. These students did not simply indulge their frus-

Img. 3:
Photo: Ulf Schwänke

tration about long waiting hours and time spent in barren corridors of public agencies but developed a dream – what would it be like to be treated as customers, rather than supplicants? In so doing they gave new impetus to teaching and learning. What started as a lesson in empathy with people looking for a job (or at least an unemployment allowance) became a lesson in the value of autonomous thinking. And autonomous thinking in itself is the enemy, or antidote, to manipulative indoctrination.

3. Mutual Acceptance and Respect

A teacher who follows – at least partially – the principle of ownership must be ready to accept students as agents who help shape the trajectory of lessons. I vividly remember five groups of students creating a box model of a stage for the European Song Contest (cf. Kommnick & de Buhr, 2009). All of the children taking part in this activity were from special schools in different countries. Some of them could neither read nor write. But all were able to invent a programme for the song contest, build a stage, create costumes, invent names and biographies of singers and solve a number of problems. The teachers watched the students' activities attentively, but interfered only by asking a question once in a while. One of the incidents in these lessons, for instance, was to consider a fi e that some mischievous person had set to the stage. After a brief brainstorming session every group put forward a viable suggestion as to how the planned concert could be saved. It was moving to observe ways in which teachers encouraged their students and showed their pride in students' progress. Teachers who wish to manipulate their students, are unlikely to accept other than their own preconceived ideas and are more likely to try and impose their own (or their superior's) opinions on them. In a totalitarian environment (which can also be a class at school) there is only one agenda that has to be followed by everyone – with no disagreement permitted. Any attempt to do this while working with the TSA would soon founder given that the story relies on the contributions of the learners and the teacher's willingness to appreciate them.

4. Openness

In following a story, teachers and students will, in most cases, come across unexpected obstacles or unforeseen problems (Bell & Harkness, 2006). That is when school work becomes interesting. One example:

In a Glasgow primary school, a teacher had started a topic about a police station. The students had created collage figu es and their biographies, built a box model of the police offic including a cell for the usual drunkards and so on. Then the teacher asked about the working hours of policemen and women. As it is well known that criminals work at any time, the students invented a time schedule with two day shifts. Then one little boy stood up and said, "Look, the morning shift drives their patrol cars to the police station at about 1:45or 1:50 p.m., gets inside and changes from their uniforms into plain clothes. The late shift comes at 2 o'clock sharp and starts to put on their uniforms. If I wanted to rob a bank, I would do it at exactly 2:00 o'clock because then no one at the police station would be ready for action." Th s argument was so convincing that the students created an overlapping shift schedule, in which the second shift started 20 minutes before the fi st shift stopped. After the class was fin shed with this subject, they all visited a real police station and compared everything they saw with their own ideas. When the topic of working hours was raised, one of the students said: "And of course you have an overlapping shift schedule." The policeman was surprised. "What's that?" he asked. So the boy explained. Then the policeman said. "I'm afraid we don't have that. But it's a very good idea." No student of that class is likely to ever forget that moment. Both – the teacher and the policeman – were open to an idea that had not been previously thought of. The purpose was not simply to endorse current practice but to promote the ability of students to fi d adequate solutions to intractable problems. In common with students, the police themselves were open to a new approach. A more indoctrinate and authoritarian teacher would generally not be open to students' ideas or challenge to their authority. If convinced (or led to believe) that there is only one truth she might be successful in influencing or manipulating the students but could not claim to be honouring the principles and practice of TSA.

5. Creativity

Many parents (and some teachers) are sceptical as to whether 'all this hands-on work' isn't a waste of time – time that could better be invested in 'real learning' (cf. Schwänke & Plaskitt, 2016). On the contrary, the founders of TSA were convinced, "that creativity and pupil engagement are linked; in creative classrooms, children show persistence and engagement with their learning" (Bell & Harkness, 2006, p. 4). They demonstrate that genuinely creative work on the part of their students offers a multitude of opportunities, for example, to:

- develop new ideas,
- test assumptions,
- share experiences,
- collaborate in arts such as painting, singing, acting, drawing, sculpting, playing an instrument and so on,
- deal with unexpected incidents,
- discuss personal views with other students etc.

The results of such activities are not judgements as to 'right' or 'wrong' but at best as plausible or more or less convincing. That is why more doctrinaire teachers are less likely to welcome divergent student creativity as they are accustomed to evaluating student's work resting on their own authority or preconceptions. They are less open to surprise, less open to being wrong or accepting their own vulnerability. By contrast, teachers, who use TSA authentically will neither extol nor condemn but rather ask further probing questions such as, "Can you think of another solution to the problem you've been working on?" or, "What is the advantage of X in comparison to…?" In doing so, they encourage autonomous learning and demonstrate confide ce in the nature of students' reasoning that lie behind their ideas and propositions.

6. Cooperation

The examples given above also illustrate that cooperation – another cardinal principle – is difficult to reconcile with indoctrination. If students are encouraged to work in small groups – or even as a whole class together – they will invariably come up with divergent ideas because it is exciting to discover something new, something no one had thought of before. As an old English saying reads, "The brain runs on fun." In addition, students who work together learn to compromise, to appreciate the ideas of their classmates, and are not content to simply accept the fi st proposition offered. They also learn to respect the views of their classmates, leading to a greater likelihood that they will not simply accept opinions based on authority without justifi ation.

7. Learning as Active Acquirement

In the end there is a fundamental difference between TSA and traditional teaching derived from behaviourist principles (cf. for instance Merrill, 1991). The authoritarian teacher is likely to believe that students simply learn what is taught from a source of unquestioned expertise. If the students haven't learned what they were taught, then it is obvious that they haven't listened carefully enough, haven't paid attention or are simply too stupid. The idea underpinning this ideological stance is that students are told what they ought to believe and that learning is primarily a form of transition of content, as is common in public oratory. If the content is not understood or people still don't do what they are expected to do, they need to be further convinced (what in behaviourists language is described as "conditioning"). TSA follows a different protocol and set of principles. Learning is seen as an active process (see Schwänke & Gronostay, 2007). Students acquire knowledge, skills and attitudes by working cooperatively on challenging problems. Teachers who are familiar with TSA know that it is futile to tell students what they ought to think. Instead, they create a learning situation in which it is fun to solve some of life's conundrums. They understand that successful learning is not only a cognitive process but imbued with emotions – not something that can be developed by dictate.

8. The Idea of Man, Human Rights

So – what does all this mean for the idea of man – or woman (our imagination of what makes us humans)? Teaching can be seen as shaping human beings in accordance with a predominant ideology. From this point of view students are indispensable as future workers, consumers, tax payers or soldiers in need of guidance and direction rather than individual freedom. But teaching can also be seen as a process, one that supports young people in becoming free citizens who develop their own ideas and use their own thinking processes (cf. Grabbe-Letschert, 2005, p. 95). Th s view supports ideas from the age of the Enlightenment, that all humans are born free, that they have the same rights and that freedom fi ds its limits where the rights of fellow humans are violated.[1] If we acknowledge and respect human dignity, as we do in Storyline-courses, manipulation is not an option. Nonetheless, it is incontrovertible that in some places in the world teachers try to press students into the mould of the prevailing political system. There are countries where there is no religious freedom, where female students are discriminated against, where evolutionary theory is rejected and where logical thinking may be welcomed, although in theory but not in practice.

There may be teachers who do not honour their students' opinions yet still believe that they are following TSA. They may proudly announce, "Look at this frieze, at the collage figu es, the word banks, the box models." Such teachers may see TSA as a kind of recipe, or showpiece while failing to recognise that it is much more than simply a method. Rather, it has to be understood as an educational approach where the learner and the learning process are centre stage, neither the teacher nor the content. Th s idea was expressed in 2003 by Cambridge professor John MacBeath whose keynote at the International Storyline-conference in Elsinore warned that TSA would only survive if it was regarded not as a method but a pedagogy – a system of self-determined and collaborative learning.

If TSA is not seen as just another method (requiring the students to follow in single file or in blind trust) but rather as a pedagogy, there is conviction that every student will eventually fi d his or her own path. Teachers in this mould regard themselves as enablers, counsellors, facilitators – not as directors or manipulators. They organise learning in a way that engages and fascinates, not simply feeding their students, or fostering and reinforcing dependency.

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1 Thi k e.g. of Baruch Spinoza who advocated democracy, individual liberty, freedom of expression and eradication of religious authority or of Immanuel Kant who wrote: 'Enlightenment is man's emergence from his self-imposed immaturity (or: nonage). Immaturity is the inability to use one's own understanding without another's guidance. Th s immaturity is self-imposed if its cause lies not in lack of understanding but in indecision and lack of courage to use one's own mind without another's guidance. Dare to know! (Sapere aude. = Have the courage to use your own understanding!) is therefore the motto of the enlightenment.'

Conclusion

Teachers – and of course student teachers too, who use TSA as intended by its creators and who apply the above-mentioned principles will, in most cases, avoid the risk of manipulation. There is, however, a reason to be vigilant. We are living in a climate where people in positions of authority, politically and socially may lay claim to 'facts' as opposed to 'alternative facts'. Where truth is made a matter of expedience, economic or political power, it is not unlikely that pressure on schools and teachers will follow. If teachers under such pressure are forced to adopt a given ideology, and teach accordingly, they should not even attempt to embrace TSA. Not only is there too great a danger of failing but there are also risks of damaging the integrity of the 'brand'. Students will all too easily notice the contradiction between the educational approach and the content 'delivered' by the teacher. If, on the other hand, TSA is to remain resilient and transformative it will stay true to its principles, a powerful tool which immunises students against manipulation and empowers them to become, and remain, self-confide t and collaborative learners.

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Chapter 16

Artistry in Storyline Pedagogy

Aesthetic Educational Design as Part of Deep Teaching and Learning

Anna-Lena Østern

Abstract. The aim of this chapter is to contribute to theory development regarding ways the Storyline teacher might enhance artistry in designing Storyline pedagogy, and thus strive towards deep education. The theory in use in this chapter is called aesthetic educational design and outlines seven features of aesthetic educational design. The theory implies a performative, inquiry-based approach to teaching and learning. As the chapter is mainly theoretical, examples of empirical material will only be sketched. The argumentation in this chapter is connected to the visual documentation of two types of tasks in use and relevant for Storyline: a three-dimensional triarama scene, and a painting of wings. Memories from work processes with the tasks contextualise the different tasks. By describing and refl cting on these tasks, the chapter strives to concretise and give an answer to the analytical question: How might depth in teaching and learning be enhanced through aesthetic educational design? Visual documentation, narrative vignettes, and a reading with theory are the main approaches to the argumentation for how aesthetic educational design might contribute to deep teaching and learning.

Keywords: teacher artistry, aesthetic educational design, artistic learning process, deep learning, diffraction

The Teacher's Overall Aim Guiding Design of Storyline Projects

In this chapter I articulate how an overall aim for Storyline pedagogy can be explored in targeting deep learning through the means of aesthetic educational design. What is fi stly an overall aim for Storyline from the teacher's point of view? What is it that the teacher wants the students to accomplish through their explorations during a Storyline project? How can the teacher facilitate the exploration by breaking down the main key question into tasks that can contribute to deep education? In this theoretical chapter I suggest two tasks that have the potential to reach depth in teaching and learning. These tasks can be part of different elaborations in a Storyline project, but they can also be part of other kinds of projects undertaken with a performative approach, starting from practice and experience. When I was struggling with formulations of possible overall aim guiding the teacher's design of any Storyline project, I started with the fi st article of the United Nation's universal declaration of human rights: "All human beings are born free and equal in dignity and rights." (https://www.un.org/en/universal-declaration-human-rights/index.html). Th s statement guides me as a teacher and teacher educator and serves as my value

foundation. It is, however, hard to know how this vast issue can be broken down and explored. Right now, the world is facing problems that make the value foundations tremble and even break down. The challenges are refugee streams, pandemic plague, war and political instability, mass unemployment, and climate change – all global issues impacting heavily on local life. We simply do not know how to solve the problems. Amid this, children are growing up, and as teachers we need to fi d ways of teaching and learning that might contribute to hope, sustainability, and quality of life. Hence, the overall aim for the teacher's planning might be to explore what the characteristics of quality of life are, and how this quality could be achieved in education.

I invite the reader to join me on an exploration of how next generation Storyline pedagogy might be enhanced by focusing on how the teacher designs Storyline projects aiming at deep learning by means of aesthetic educational design. Th s chapter, hence, is an invitation; it is a suggestion to take the risk of actively thinking like an artist, as well as a teacher and explorer/researcher together with the students. I fi st present two tasks that I elaborate later in the chapter. After that I introduce agential realism as a methodology for the exploration of these tasks. I start the exploration by presenting a background regarding deep education as a preparation for the presentation of the characteristics of an artistic learning process and the theory of aesthetic educational design.

Background – Deep Learning

In Norway two white papers (NOU 2014:7 and NOU 2015:8) have been published about the future of school and education. In these papers the expert group articulates three overarching challenges for education in a future perspective: the challenges connected to multiculturalism, the urgent need for thinking about sustainability, and the fact that students do not master their lives. The expert group concluded that there is a need for more focus on practical and aesthetic subjects in school in order to make the learning more meaningful, and what the students especially need is more depth in their learning, because at the moment there is too much superfic al and fragmented learning. Consequently, a new cross-curricular theme called *health and life mastery* [folkhelse og livsmestring] has been introduced in Norwegian schools, and many suggestions have been made regarding how to deepen the teaching and learning. T.P. Østern, Dahl, Strømme, Petersen, A.L. Østern, and Selander (2019) have criticised the expert group's defin tion of what deep learning is, considering it too focused on cognitive aspects in a narrow way. T.P. Østern et al. suggest that *aesthetic educational design* as a contribution should be added to the expert group's recommendations. In the next section I will explain the features of the theory of aesthetic educational design, but before that I will trace some of the 'roots' of the concept of deep learning. Dahl and T.P. Østern (2019) mention that researchers in the 1970s developed the concept pair *deep* versus *surface* learning in studying how adult students used learning strategies in order to acquire theoretical knowledge in higher education. The authors ask: Does a six-year-old learn in the same way as an adult student? (Their answer is no.) According to Dahl and T.P. Østern, this narrow scope in the defin tion distorts the whole concept of deep learning. A more holistic conception of 'deep' is formulated by Tochon.

Tochon's Understanding of Deep Learning, Deep Teaching and Deep Education

Tochon (2017) has written extensively about deep learning, deep teaching and deep education. He maintains that "[d]eep education transforms the biosphere into 'semiosphere' – a world of meaningful signs – and creates a meaning-making environment for action" (pp. 26f.) Tochon refers to Hargreaves and Fink (2006) when defini g the dimensions of deep learning, deep teaching and deep education:

> …learning has to matter for deep understanding to happen. Deep learning is energizing and doesn't burn out teachers, it doesn't harm the environment; quality is linked to variety rather than standardized forms of expression; deep teaching honors the past and develops wisdom for the future…. In deep education, standards defi e processes rather than products. (Tochon, 2017, pp. 29)

A key to Tochon's understanding is that learning has to matter for both the learner and the teacher. He describes the necessary life-meaningfulness in the following way:

> Deep teaching is learner centered. It builds on the intrinsic motivation of the learner, authentic documents, and new information technologies when appropriate, conditional to integrating philosophical depth in their processing. Deep teaching is based on meaningfulness for the learner and is project-based. To teach life-meaningful contents to students, the teacher needs to know what is meaningful to them and discuss meaningfulness in life. Learning and teaching have to meet lifegoals. The approach is contextualized and situated. Meanings are embodied in actions. (Tochon, 2017, p.29)

Tochon also uses the concept deep education: "Deep education is all about mindset and action" (p.38). Inspired by Tochon's notion of mindset, I will in the following sections of this chapter articulate possible ways of action in Storyline within higher education, aimed at promoting depth in learning and teaching. Tochon's understanding of deep resonates with the understanding in Sava's description of artistic learning processes as well as in the theory of aesthetic educational design. A performative inquiry mode is part of the approaches suggested in aesthetic educational design, and in Sava's description of an artistic learning process. I introduce them as theoretical perspectives that guide my reading with theory connected to two tasks that can be applied in Storyline, with aesthetic educational design as an opportunity for the teacher to plan for depth in learning and teaching.

Methodology

Th s chapter is, as mentioned earlier, mainly a theoretical chapter intended to contribute to a meta discussion regarding what an aesthetic educational design might contribute to the teacher's planning philosophy in terms of depth in teaching and learning in Storyline. The importance of potential artistry of the Storyline teacher is a main concern in this chapter, and how this artistry can be supported in developing tasks for inquiry in Storyline in different settings. The French philosopher Rancière describes aesthetics for our time as a possibility to include in art what has not been included

before (Ranciére & Rockhill, 2013). Social aspects of art become increasingly important. Th s is how I try to articulate artistry as part of a teacher's repertoire in planning and facilitating the students' learning processes. The focus in this chapter, therefore, is on the teacher's planning and choice of tasks that can connect to the aesthetic educational design. The analytical question (St. Pierre, 1997) I elaborate in the chapter is: *How might depth in teaching and learning be enhanced through an aesthetic educational design?*

Inspiration from Agential Realism

The analysis takes inspiration from some concepts in use in agential realism (Barad, 2007), also called relational and social materialism (Lenz Taguchi, 2012). Following Lenz Taguchi, relational materialism and socio-materialism are connected to an ontological turn, where connections, encounters, events and intra-activity between all types of materiality (human matter and non-human matter) are underlined in order to obtain more ethically sustainable knowledge about ourselves. *Intra-action* is a concept pointing to how we are *entangled* with materiality; we cannot show clear borders between ourselves and others, as well as between us and materiality, because we are dependent on each other for our existence (Lenz Taguchi, 2012, p. 15). Following Lenz Taguchi, both human matter, affects, space, material objects and artefacts have *agency* in the production of power and change. Th s stance affects the worldview as well as the view on how teaching and learning can be understood.

Lenz Taguchi fi ds that this onto-epistemological stance gives us a chance to understand that different materialities (human and non-human) make themselves understandable to each other. Th s will, according to Lenz Taguchi (2012, p. 17), make possible cross-curricular classrooms, which offer many different possibilities for knowledge and learning. In particular this cross-curricular classroom is of interest from the perspective of Storyline pedagogy. The idea of exploration of a theme from the perspective of different subjects is well known in Storyline pedagogy.

Refocusing Attention from What Something Means to How It Works

In a *diffractive* analysis differences and nuances are of special interest, and that is why diffraction is a valuable tool for the analysis (Guillon, 2018). The concept of diffraction is derived from quantum physics (Barad, 2007; 1991; Juelskjær, 2019). It can be explained as a metaphor for waves meeting a barrier and then diffracting into new waves, where the original waves still leave some traces in the new waves. Jackson and Mazzei (2012, p. 12) describe reading diffractively as when we "fold these texts into one another in a move that flattens out relationship to the participants, the theory and the data". Gullion (2018, p. 103) suggests that the researcher refocuses attention from what something means to how it works.

In this chapter I read the empirical material with the features of aesthetic educational design. I make each task a unit of analysis, and my concern is the capacities for action, relation, feeling and desire, and that the task might open for participants in an educational event (Gullion, 2018, p. 104). The task can be considered a challenge

or barrier, and the different processes and choices co-created by student groups serve as diffractions. The analytical question for this chapter concerns deep teaching and learning, and how aesthetic educational design might enhance depth. Depth is then described following Tochon's notions concerning mindset and action. Meanings are embodied in actions, Tochon suggests.

Two Tasks as Material Used in the Analysis

I have chosen two types of tasks, suitable for use in Storyline projects, for the analysis: (Task 1) a material for three-dimensional work called a triarama scene (with images of examples 1–3); (Task 2) a visual art task called painting of wings (with images of examples 4–5). I describe the materials and present images of how they have been used in educational settings. Narrative vignettes, consisting of an e-mail from a teacher in grade six, a narrative written by one pupil in grade six, and memories from my researcher diary, accompany the analysis. The analysis is first descriptive, and thereafter I notice diffractions and argue for the potential learning using concepts from aesthetic educational design.

Theoretical Perspectives

Inquiry-based Learning and Performative Inquiry

The teaching and learning in Storyline are inquiry-based, with key questions as one main inquiry tool. This is well known and most often connected to Dewey's (1935) notion of experience-based learning by doing, reflecting and undergoing (See Østern, 2019). Performative inquiry (Fels & Belliveau, 2008) offers the teacher a position where the teaching and learning emanate from practice and exploration in performative ways (Østern & Knudsen, 2019). Performative theory in the arts, as formulated in a performative manifesto by Haseman (2006), by Schechner (2013) in an introduction to performance studies, and as a performative movement in education by Gergen and Gergen (2018), all underline the performative elaboration (by exploring in fiction or out of fiction) of how things could be (different). Gergen and Gergen describe a drive towards using evocative language in research, acknowledging the importance of affects and feelings, and in preferring a poetic language. Gergen and Gergen argue that performative work establishes the ground for dialogue with society. They suggest that "by using arts as the lens through which we understand the world, new and exciting vistas of theory and research are opened…" (Gergen & Gergen, 2018, p. 64).

Leavy (2018, p. 12) writes that thinking like an artist implies bearing in mind the artfulness of the resulting work. It involves a practice where persons learn about the craft that they are involved in. The Finnish researcher Sava (1993) has described an artistic learning process focusing on the perspective of the student. I will shortly present her model as part of the theoretical backdrop for this chapter, and as a way of explaining what teacher artistry comprises (See also Østern, A.L., 2013, pp. 28f.).

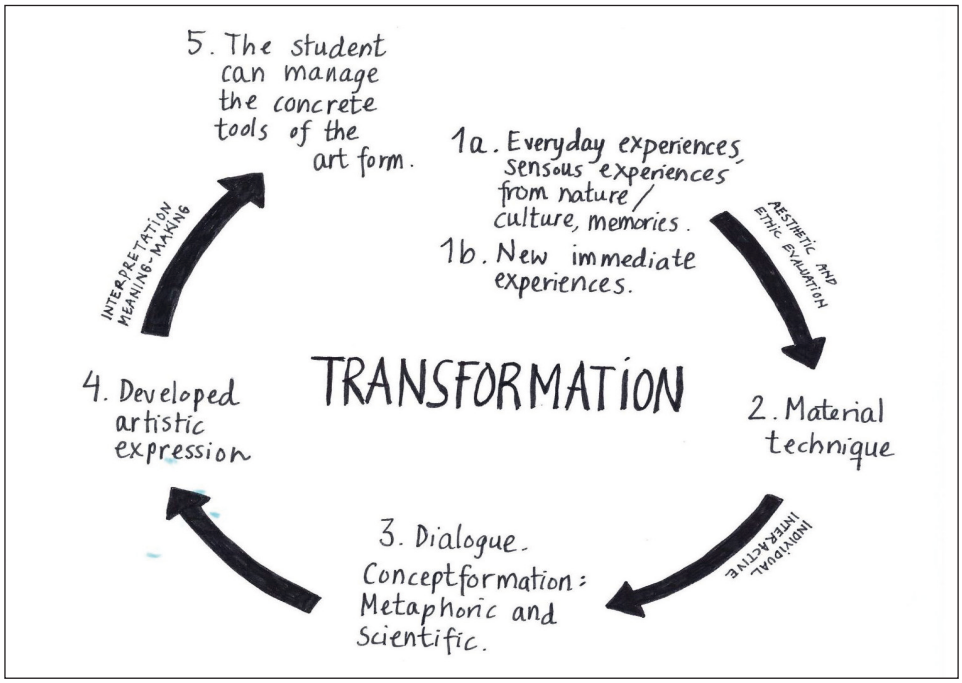


Fig. 1: An artistic learning process from the student perspective (adapted from Sava; and re-designed by Stølsdokken Østern).

An Artistic Transformative Learning Process – Facilitated by the Teacher

Sava (1993) has constructed a model of an artistic learning process with a series of transformations in an encounter with arts, both regarding form/reception and production of an art expression. Th s is visualised in figu e 1.

Sava wrote the 1993 chapter in a book intended for basic arts education, and her targeted learner is a student in basic arts education. Sava has written the text for teachers. She gives the teacher a prominent role as facilitator in an artistic learning process in all transformative phases mentioned in the model. The teacher invites the student/pupil (1a) to mindfully think of an everyday experience, or to experience a phenomenon in nature while sensuously wide awake, or a strong art experience, or a memory, or even a fantasy dream. She thus guides the student to assess the aesthetic and ethical implications of the experience and how it could be concretised in an art form. The teacher then gives suggestions for (2) choice of material and form. The phases are transformative, and each student in the group might make individual choices, but also interact with the others and the teacher. In the next phase (3) the process becomes more clearly focused, and the teacher can contribute with possible articulations of what the characteristics of the artistic process might be. Th s dialogue is an important part of the learning process in an artistic endeavour. (4) The developed artistic expression might now take shape, and the interpretation of meaning can be articulated. During this transformative process (5) the student learns the basics of art as techniques, materials and possible choices.

The model is therefore formed as a repetitive cycle, starting a new cycle (1b), when one cycle is ready. The dialogue about personal affects and thoughts, and being able to articulate experiences, feelings and knowledge, being open to listening to the experiences of the others and understanding the symbolic and visionary language that art has, all contribute to the process.

Sava stresses the importance of listening to others when sharing artistic experiences, and she maintains that this is a meaning producing process, where something is given importance and value. Sava discusses the relation between aesthetics and ethics, suggesting that developing awareness and expanding insight embrace the ability to carry ethical responsibility for oneself, for others, for nature and culture. Sava argues that through artistic learning processes the students develop mental models in at least two ways: metaphorically in the art form, and verbally through the articulation of concepts.

Sava writes that one result of an artistic learning process is that the person is changed somehow, relating to self, to others, to society, to the larger world, or to ideas. If there is no change, Sava concludes, it has not been an artistic learning process. She mentions three possible changes resulting from an artistic learning process: a quantitative change in the amount of knowledge, a qualitative change through an artistic interpretation on a more advanced level, and a structural change in artistic, creative thinking, as well as how the fantasy of the person works. Sava gives the teacher a prominent role in guiding the student in these kinds of encounters. Sava's process model can be one way to describe a learning process with potential for depth, and with existential qualities. In any Storyline project there is already the fi tive frame, where the participants create the characters and the milieu for the phenomenon under study. A challenge for the teacher in her facilitating role is to strengthen the artistic approach to these tasks by presenting key questions that enhance depth in learning, noticing how the tasks are carried out, and providing suggestions for material and technique, as well as making the inquiry process extend long enough to let the transformations take place during the processes.

Aesthetic Educational Design – a Short Review

The development of theoretical aspects of aesthetic learning processes have interested Nordic research groups in education for quite a long time. I will mention two research and development projects that I have participated in as teacher educator. The focus in both projects was on aesthetic approaches to learning. Both these projects were tentative answers to two analytical questions: (1) What are the characteristics of aesthetic approaches to teaching and learning? (2) How can aesthetic approaches to studying and learning be concretised in the tasks given to the pupils?

The fi st project was carried out by an author group in teacher education in Finland, producing five literature anthologies, named *Litteraturboken 1–5 [The literature book 1–5]*. The series was intended for primary school and published between 2004 and 2013. These anthologies had attached teacher tutorials suggesting aesthetic/artistic entrances to the literary texts, promoting the interpretative reading of fi tion. The second project was called *Reading and writing for children and young people of the 21st century* (my translation from Norwegian). The project was carried out from 2009 to 2012 in a

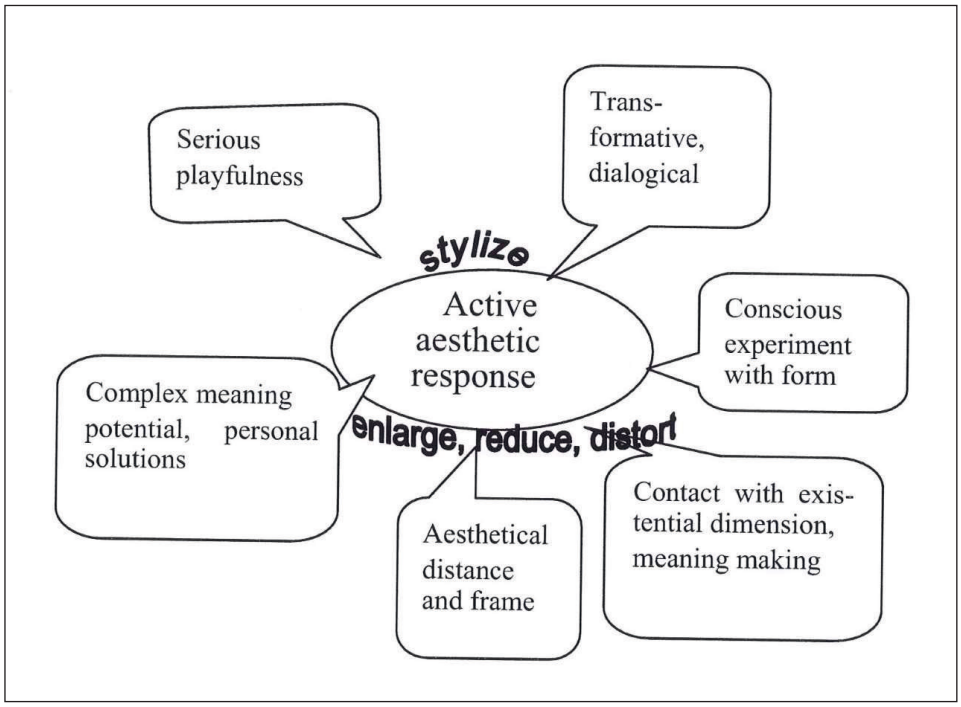


Fig. 2: A mind map of aspects of active aesthetic response (Østern, 2003, p. 34).

lower secondary school in Norway with many pupils of ethnic background other than Norwegian. The specific challenge was to support depth in language learning. The development project consisted of four Storyline projects connected to water as threat and hope, locally, nationally, and globally.

A.-L. Østern (2002, 2003, 2004) published her fi st idea as a model of an active aesthetic response in 2002, a mind-map (Figure 2) regarding active aesthetic response, where aesthetic is described as stylising, enlarging, reducing, or distorting. The aspects chosen in the mind map connect to meaning making and existential dimensions.

The inspiration from Sava is visible in three of the speech bubbles: transformative and dialogical, conscious experiment with form, and contact with existential dimension. Furthermore, the notion of serious playfulness is an inspiration from Huizinga (1944), and the notion of aesthetic response is borrowed from Iser (1976). Th s mind-map can be recognised in the larger project applying aesthetic and artistic entrances to the interpretive reading of fi tion in primary school (Heilä-Ylikallio, Østern, A.L., Kaihovirta-Rosvik & Rantala, 2004, p. 14). The notion of aesthetic educational design has been further developed within a Norwegian context, mainly in an R&D project centred around man and the universe in "Space me", with a Storyline pedagogy for grades eight and nine connected to the exploration of gravity, with a cyborg figu e as rotation centre (T.P. Østern & StrØmme, 2014), and with further development in another R&D project focusing on death, decay and new biological life, "200 billion and one" (T.P. Østern

et al., 2019)[1]. The version of the theory of aesthetic educational design developed as a result of this latest project will be my point of departure for the description of seven features of aesthetic educational design (in Norwegian, *Sanselig didaktisk design*). The notion of design refers to design theory as developed by Selander (2017) for learning design sequences, which the teacher designs and stages.

An overall description of an aesthetic educational design is formulated in the following way:

> The educator's and the student's work with creating form with learning processes that are artful, performatively multimodal, student active, relational, bodily, exploring and intra-active, where the students and the educators also sense, think, relate, are engaged, challenged, move and are moved while producing knowledge and learning together (Østern, T.P., Selander & Østern, A.-L., 2019, p. 66; my translation from Norwegian).

The features of this design, as the examples above show, have been developed over more than a decade of experimenting and exploring how aesthetic approaches to teaching and learning can contribute to a meaningful (and deep) education. In the next sections I will briefly elaborate on seven features of the aesthetic educational design. I point forward to the tasks I will describe later in the chapter.

1. Æsthetic Approaches to Learning

Th s feature is to a large extent covered more in detail by the six following features, but the point of making this feature the fi st one is that an aesthetic approach relates to work in and through one or several art forms. An aesthetic approach to learning consists of active elaboration of experience, sensuousness and shaping of form. The approach implies that a performative inquiry is elaborated into a meaningful theme. Th ough work in the art form the teacher challenges the students to give a response when elaborating and exploring the task or formulating a task within the given theme (or even fi ding a triggering new theme within the theme). Th s aesthetic approach is the baseline for an aesthetic educational design. It gives the student the satisfaction of functioning creatively as an individual or as a group. An aesthetic approach to learning is a main characteristic of the two tasks I will describe later in this chapter.

2. Bodily Learning

The body is important in all learning. Working in an art form implies a practice where the body-mind works as a totality. The affective aspects connected to feelings and attitudes are activated and add to the joy and thrill of learning. The aesthetic approach implies a sensuous approach. It is important that the feeling of liveliness is present in the elaboration, and that affects and bodily resonance are asked for, and designed, by the teacher. In order to be moved you need to move, and in order to understand you need to grasp the material, touch and feel. You need to experience the nature/culture space

1 Trailer from the performance https://vimeo.com/205538139

you inhabit with the students. Th s focus on bodily learning also implies that the verbal articulation of knowledge is but one way to express knowing, and a bodily expression is also understood as knowledge formation, where the insights might be transformative, even shocking, mind-blowing and eye-opening. A bodily articulation is suggested as one diffraction in task 1, example 2.

3. Multimodal Impulses and Materials Working Performatively

The impulses given to the students can be taken from different art forms like dance, drama, visual arts, film, oral traditions, literature, and more. Different materials offer different opportunities and challenges, when elaborated. Both the modality and the material chosen work performatively: they have agency and produce something during the process, something that was not obvious from before. All matter can have agency, meaning that it influences the learning process. In task 1, example 3, masters students prepare themselves for fi ldwork, where they are supposed to create a project in a subject using dramaturgical entrances of four types: time, space, body and text. When as part of the course work they elaborated space, they created the triarama scenes visualising (a) their imagined dream place, and (b) a dream classroom where they wanted to be teachers. The multimodality of the combination of a concrete triarama's three-dimensional materiality juxtaposed with their own imagination, and also both triaramas juxtaposed, made the orchestration of meaning complex and rich. Even the comparisons with other student groups' elaborations of different triarama scenes served as multimodal impulses.

4. Difference and Friction as Important for Meaning Making, Learning and Teaching

One important aspect of the aesthetic educational design has a special inspiration from working with arts and crafts. Just as an artist does when he or she wants to explore possibilities, so also students and teachers can explore differences and frictions. The differences and frictions are considered values in a performative inquiry, when trying to fi d out what it is, how it works, why it is, or how it could be, or creating new stories, new hybrid formations, that make sense in a contemporary context. Th s aspect can be explored especially by juxtaposing, for instance, the lives of the Vikings with our own life circumstances (Example 1 in this chapter), or Syrian refugees living in refugee camps with our own safety in the Nordic countries (Example 2 in this chapter).

5. Exploring, Relational and Intra-acting Learning

Explorative and performative inquiry is a key to learning with an artistic approach. The students and the teacher are in relationship with each other through their common interest in the production of knowledge. The learning is complex and dependent on both human relations and materiality. A performative inquiry, relations and intra-acting between humans and the other than human, the materiality of things, the vibrant

matter, are entangled and ever changing. An example might be when teacher students first elaborate their dream place, and then transfer this to their dream classroom, and share their visions with the other masters students (Example 3 in this chapter).

6. Participatory Arts Encounters

Participatory arts encounters imply an approach to what we do not understand immediately. Arts demand active interpretative work from the person experiencing them. In participatory arts encounters the students are also active in forming the artistic expression, and therein lies a potential not yet explored enough in education. Participatory arts encounters are shown in task 2 (examples 4 and 5 in this chapter): the painting of wings. In groups of three the students collaboratively chose what wings they wanted to paint, and what colour combinations they should use. There was clearly a masculine and a feminine version of wings, and some extra negotiations when the group was mix gendered. The range of colour available also made the wings look different. When a group did not have any black or white, but only pastel colours, the result most often was butterfly wings. This task was opened gradually, from the concrete formation of the wings to a further elaboration of a theme, which I present in task 2 in this chapter. Helguera (2011)in *Education for socially engaged art* writes that in these kinds of participatory arts encounters the participants end up not only knowing the artwork:

> Traditional pedagogy fails to recognize three things: first, the creative performativity of the act of education; second, the fact that the collective construction of an art milieu, with art works and ideas, is a collective construction of knowledge; and third, the fact that knowledge of art does not end in knowing the artwork but is a tool for understanding the world. (Helguera, 2011, p 80)

7. Focus on Dramaturgy in the Educational Context

To work like a dramaturg means that you compose the curriculum, the session, the sequence as a complex endeavour, and the theatrical vocabulary gives a freshness to the planning. Above all, the choice of meaningful aims and meaningful means are underlined in dramaturgical thinking. The gaze of the dramaturg shows how important form and the shaping of form are in educational processes (See Østern, 2019 about dramaturgy in Storyline[2]). The means of the teacher dramaturg can be employed to compose a story, or to make a montage with episodes. The teacher thinking is connected to finding a balance between what the students know from before and what new experiences they can be challenged by. There are four main entrances to dramaturgical thinking: time, space, body and text (also understood as multimodal text). The hook in the beginning is supposed to engage the students to inquire into the theme. The need to vary the

2 In another edited book Teaching and learning through dramaturgy. Education as an artful engagement (Østern, A.L., forthcoming, Routledge) the dramaturgy in educational contexts is further elaborated.

tempo, the intensity, the timing, the different working forms, and the different group or individual work forms are carefully chosen by the teacher dramaturg in order to support the students' learning processes in meaningful ways. The first task I elaborate on in this chapter contains two examples of the teacher's dramaturgical thinking during evolving projects (*The Vikings*, and the workshop *Incomers*).

These seven features might lead to a dramaturgy which embraces meaning making, teaching and learning, where the values that flow through are not invisible, but articulated. It is a classroom where issues concerning meaning give ownership to the learning (T.P. Østern, Selander & A.L. Østern, 2019, p. 74). In the following analysis carried out as reading with theory, these features serve as lenses for the reading of two tasks.

Potential Deep Education through Performative Inquiry

Task 1: Triarama Scene as Space for Inquiry into a Theme

The idea for a triarama scene is from the earlier mentioned R&D project for primary school in Finland, where we focused on artistic entrances to the interpretative reading of fiction (Østern, A.L., Heilä-Ylikallio, Kaihovirta-Rosvik & Rantala, 2010, p. 65). The description of how to make a triarama is as follows:

> Take a square paper, fold two diagonals like an x. Cut one of the diagonals to the middle of the paper. Fold the flaps over each other into a triarama scene. Do not glue the flaps before the motif is ready. (Østern, A.-L. et al., 2010, p. 65, my translation)[3]

My analysis will consist of a commentary with narrative vignettes and examples of what I found as diffractions.

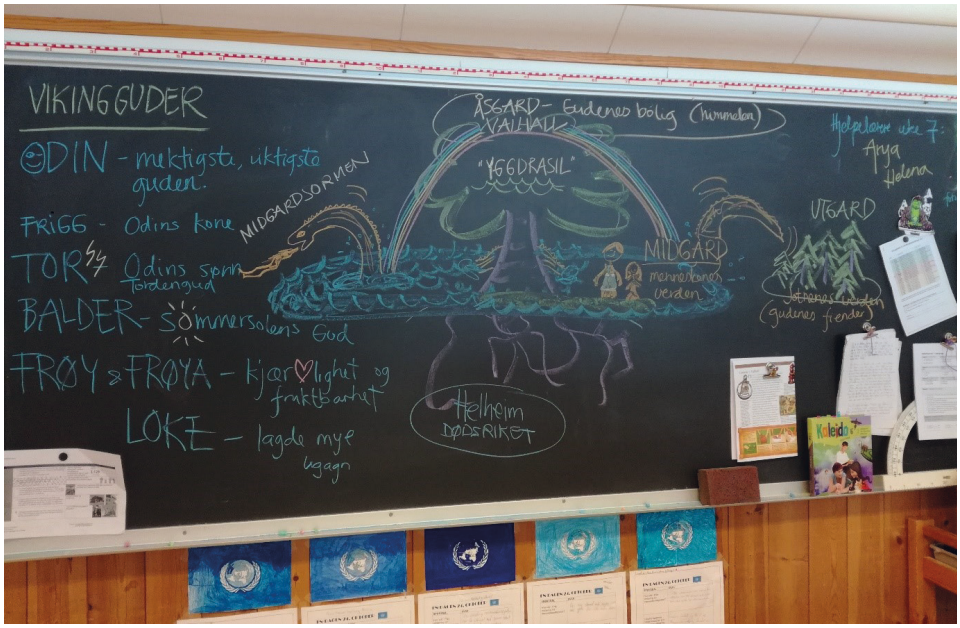
Example 1: Nordic Mythology and the Vikings

In a project in grade 6 in an urban Norwegian school the theme *Nordic mythology and the Vikings* was elaborated. The key questions for the exploration were: What did the Vikings believe in and how did the Vikings live? The teacher sent me images from the project, and I had an e-mail conversation with her about the project.

Narrative vignette 1

> *I chose to work with the text "The Gods of Valhalla" from a book called* The world of the Vikings *(Steele, 2000). I found out that I could use the blackboard and different coloured chalks to visualise the main aspects of the world view of the Vikings with the levels of earth as a flat pancake, the snake swimming around the world, the realm of the death Helheim under the earth, and the rainbow above picturing the gods' heaven (Valhalla). All the pupils were handed the text, colour pencils and drawing paper. Together we read the text one sentence at a time and paused to draw. I modelled by drawing on the blackboard, and*

3 Many internet sources explain how to produce triarama: http://www.stormthecastle.com/diorama/make-a-triarama.htm



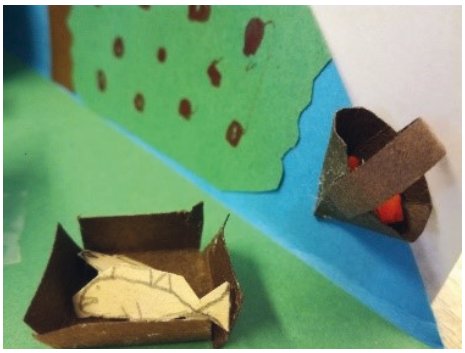
Img. 1: The teacher's chalk-work around Nordic mythology.

> *the class watched and drew on their own sheets. I made it like a Storyline wall folding out as we proceeded in the project. Step by step we read and drew ourselves through the whole world of Midgard, Åsgard and Helheim. We also marked the drawings with names and comments which would make it easier to remember details later. The pupils were so attentive, and we had several interesting discussions along the process.* [The teacher's e-mail to the researcher]

In the classroom with 6th graders, they had worked with the project on Nordic mythology and the Vikings for several weeks. The teacher writes about the triarama scenes:

Narrative vignette 2

> *Then I altered the idea to a classroom task, and let the pupils choose elements from what they had learnt about the Viking age and create their own 3D scene. They all used A3 size paper and had to fold, cut, draw, colour and choose suitable materials. They chose themselves what scenery they wanted to produce but were seated in groups of four so that they could discuss relevant issues and share ideas throughout the process. The following themes were elaborated: A mother and wife by the fire waiting for her man to come back; a wife taking care of children and sheep; a Viking boy training with bow and arrow to hit a target; children playing at the waterside; a grown up waiting leaving with his weapons; and finally a Viking saying farewell* (The two last triaramas can be seen in figu e 2). *In addition to creating the triaramas, the pupils were also given a writing task describing the different elements of their personal triarama* (Narrative vignette 3 is an example connected to the triarama in images 2–3)*. These texts were implemented in an exhibition made in the classroom later, and some pupils were also chosen to present their texts and scenes on a weekly gathering with the rest of the school. I just wanted to thank you for the*



Img. 2–4:
Viking life projected onto triarama scenes.
Image 4 depicts a farewell scene.

idea and tell about how I developed it to my own project with the pupils. [E-mail from the teacher to the researcher]

Triarama scenes with Viking life motifs are shown in Figure 4. One pupil's narrative about the triarama on the left (nd a detail in the middle) is Narrative vignette 3.

Narrative vignette 3

This is my triarama, it shows a little of the life of the Vikings (Th s triarama is in the images 2–3, and a detail of it in the middle of image 4). *The Vikings were often at war; they trained a lot to shoot with bow and arrow and to throw axes. As an example, you see a man with a bow and arrow. Behind that man is another man with an axe. He produces weapons and tools. The Vikings used helmets, though we do not know for sure. I think so, because they were in war a lot.*

To the right I have made some fish and berries (Detail in image 3). *That is some of the food they ate. The Vikings made fire in order to prepare the food. Above the food you see a big snake called the Midgard snake; many Vikings were afraid of that. The Vikings also believed in gods, for instance Thor. They believed he was the god of thunder; he was the second most important god. The most important god was Odin: he is the father of Thor.* [Narrative written by pupil in grade six, my translation from Norwegian]

Diffraction: A juxtaposition of the life circumstances of the Vikings and us today can create surprisingly many similarities with our time, but also some signifi ant differenc-

es. Due to big volcano eruptions around the year 536 there was no sun visible for two years, because of the layer of ash. One third (approximately) of the population in Scandinavia died from hunger, because of failing harvests. Many places became empty and people left to fi d new places to live. The religion of the Vikings was gradually forced to give way to the Christian religion, when many Vikings became integrated in France or England.[4] These are possible themes for refl ction during the work process.

The idea with triarama can of course be applied in different contexts with adult students/teachers, as in examples 2 and 3.

Example 2: Triaramas in the Workshop Incomers

Example 2 is from a workshop I gave at a conference in 2018, with Turkish teachers as participants. The theme of the conference was *Incomers*. We explored a refugee theme based on the key question: How do refugees survive and maintain hope? The participating teachers worked in groups of five and created triarama scenes of (1) the escape (image 5), (2) the closed borders (image 6), (3) life in the refugee camp (image 7), and (4) the hope for another life with reunion with the family (image 8).

Img. 5–8: Four examples of triarama scenes about being a refugee.

4 On Viaplay the documentary The last journey of the Vikings (Vikingarnas sista resa) shows the historical events.

Narrative vignette 4

I had this 6 hours' workshop at a conference in Turkey. The theme Incomers was sensitive, and challenging. Some of the teachers in my group had experience from working in camps, and the amount of refugee camps in Turkey was at that time over 30. I decided to make the workshop a combination of participatory art, Storyline and process drama. I was seeking ways to handle the theme with respect and empathy, feeling that I knew much less than the teachers encountering the situation closely with so many incomers. In a way, I felt that I had to 'diffract' in the process, trying to find different performative entrances to explore the theme. I think that I contributed with some safe frames to open for depth in the learning process, and I was absolutely a learner alongside the teachers. I worked with a translator; hence, the different art expressions were necessary as ways of connecting to the teachers. They made the triaramas, and afterwards they picked out one moment from a scene that they embodied in a dramatic sequence. I especially remember the escape route created, the making of food in the camp, the glimpse of hope, and the possible reunion with family. The affects from these embodiments will remain long in my memory [Researcher diary memory]

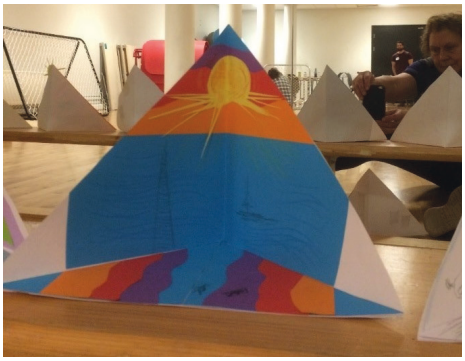
Diffraction: Narrative vignette 4 catches several diffractive moments in the process of the workshop. The triaramas together turned out as a story about existential questions, fear and insecurity of the families facing this situation. If one considers the materiality of the triarama, it surely allowed for different solutions, but all part of the same story: the participating teachers' ideas regarding how it feels to be a refugee. The teachers' thoughts were articulated about what might bring hope in that situation, what desires the situation arouses, as well as what fears and what frustrations. The signifi ant moment each group chose exposed more of the diffractions regarding the experiences of the participants. The simplicity of the material triarama forced the participants to downsize the complexity to one signifi ant scene in each triarama. As each group had five participants, the collaborative exploration of their aspect of the common theme was given space.

Example 3: Space as Dramaturgical Entrance

The third example (images 9–10) is from a dramaturgy session in autumn 2019, where my masters students (in Norway, but with some students from other countries) in a dramaturgy subject elaborated space as a dramaturgical entrance to the theme: 'My favourite place' and 'My dream classroom'.

Image 9 reveals a dream place out in nature. One of the dream places had a nature motif and a bed in the midst of nature. The dream classroom pictured in image 10 to the right has a sun (like in the dream place), and green plants, and one big table for all pupils.

Diffraction: The space between 'My dream place' and 'My dream classroom' is a learning space. The in-between space, for instance, exposes the distance between a personal dream and a teacher's dream for the professional space. Seeing the whole sequence of different spaces materialised in the triaramas produced by the students, and




Img. 9–10: Masters students' triarama scenes with 'My favourite place' and 'My dream classroom'.

hearing the stories about these spaces, could make the learning experience layered. The juxtaposition of triaramas showed how unique every person's desire is, but also some common ideas.

Task 2: Painting of Wings: What Would You Do If You Could Fly?

The idea of painting wings can be found in different places, but I have borrowed the idea with permission from the visual artist teacher and researcher, Hanna Kaihovirta (2018). I have used the painting of wings as an entrance to imagined space, asking the key question what would you do if you could fly? Example 4 shows two wings co-created by groups with three members in each (images 11–12).

Example 4: Flying gives a sense of freedom


Img. 11–12: Paintings of wings with different ideas realized.

Students and educators (autumn 2019 and winter 2020) in different higher education contexts painted wings in groups of three students, and the size of the wings had to be as broad as the reach of the person's outstretched arms. My concrete starting point for further elaboration in these workshops was the, earlier mentioned, fi st article of the Universal Declaration of Human Rights. Flying then is a metaphor for a sense of freedom.

The wings painted all looked quite different, and the participants were asked to take selfies ith wings. Two examples are shown in images 13–14.

Furthermore, each person, when standing in the image with wings was asked to tell about where to fly to if she or he could fly.

Example 5: Participatory Art Encounter with Moments of Upheaval of Gravity


Img. 13–14: Masculine and feminine strength exposed in selfies ith wings.

The embodiment of the imagined space created by the wings was followed up by efforts to jump (overturning gravity), and to form groups with movements in slow motion such as, for instance, cranes flying from the Nordic countries to other parts of the world. Th s task is surely open for further development in some Storyline project.

Narrative vignette 5

> *The painting of wings is a participatory art encounter. I have until now designed workshops with painting of wings in three different contexts. As a teacher I have had the wish to reach that point where the exploration of wings, selfies, gravity, and desires lead to what Helguera writes about in Socially engaged art: not only to know the artwork but to understand more of the world. When the students evaluated the task, some of them said that I definitely brought them out of their comfort zone with this task. But when they responded to the challenge, they started loving the way we worked, and some asked why did I not know about this earlier? And that they can learn this way. Many of the students wanted to use their imagined wings to fly back home, some to fly to a warm place, but some also to fly to places where they could be helping other people. These desires might touch upon an aspect of deep education.* [Teacher-researcher diary memory]

Diffractions: The challenges in this task are connected to the processes of choosing the type of wings, to collaborating on the production of wings, the choice of attitude when the selfie with wings was taken, and the challenge connected to using slow motion in flying, and using core movements of the torso and shoulders (not only the periphery of your body with your hands and arms) to fly like a crane formation, to try to get all to fly in the V formation, to experience the lightness, joy and freedom when two persons are lifting a third high up in the air. These elements of exploration did not resemble the earlier higher education exploration of gravity, and the theme and working forms became an affective bodily learning process.

I have now described the empirical material as two tasks, and I have presented five visual examples (images) of the tasks elaborated by groups of participants in projects. The commentary has as its backdrop the idea of reading these tasks through the fea-

tures of aesthetic educational design. In this reading I take inspiration from the concept of diffraction. My focus in the analysis will be on identifying aspects that could become performative agents and what they might produce, with special attention on the diffractive patterns which are enabled to emerge through the features of aesthetic educational design. Sava's description of an artistic learning process will contribute with the concept of transformation, which can connect with different performative agents, namely in what the performative agents produce. The analysis is also in dialogue with Tochon's notion of mindset and action.

An Argumentation for Deep Learning through Storyline

The tasks I have chosen are two examples of *aesthetic approaches to learning*, and they can be transformed in different directions, depending on the key question or the problem the teacher wants the students to inquire into. All seven features are not elaborated in each task, even if it is possible to direct the focus in the way the teacher wants. However, the first feature, the aesthetic approach, is at work in both tasks described, as part of the choices and transformations.

Each feature carries certain potentials for becoming active as agents, contributing to the depth and meaningfulness of the learning process producing knowledge. The first obvious thing I notice is that the features of aesthetic educational design are already connected to the tasks, or straightforwardly entangled, because I have chosen tasks that build upon the ideas presented in the aesthetic educational design. I tentatively mention two agents that might contribute to the resulting diffractive patterns: intra-action and materiality. The diffractions in this context are the different processes and solutions the tasks call for.

Possible Intra-Action as Agent

The two tasks can be realised in different ways, and the entanglement of matter and meaning can be promoted through the intra-actions between the different participants inquiring into the tasks and contributing with their ideas, creativity and experiences to making the narratives connected to honouring the past and developing wisdom for the future (feature 5) – in the triarama scene, as well as in the painting of the wings. The dramaturgical aspects (feature 7) might contribute with both friction and surprising solutions (feature 4). The teacher's relational (feature 5) and structuring (feature 1 and 7) work is a strong performative agent influencing and intra-acting with the energy of the students, as well as with the materiality of the chosen task. In the two tasks described above, the teacher's relational work is decisive for the engagement and resilience of the students. The teacher's relational work contributes with artistic focus, suitable material (feature 3), encouragement (feature 5) and a community spirit (feature 6), for instance in the painting of wings.

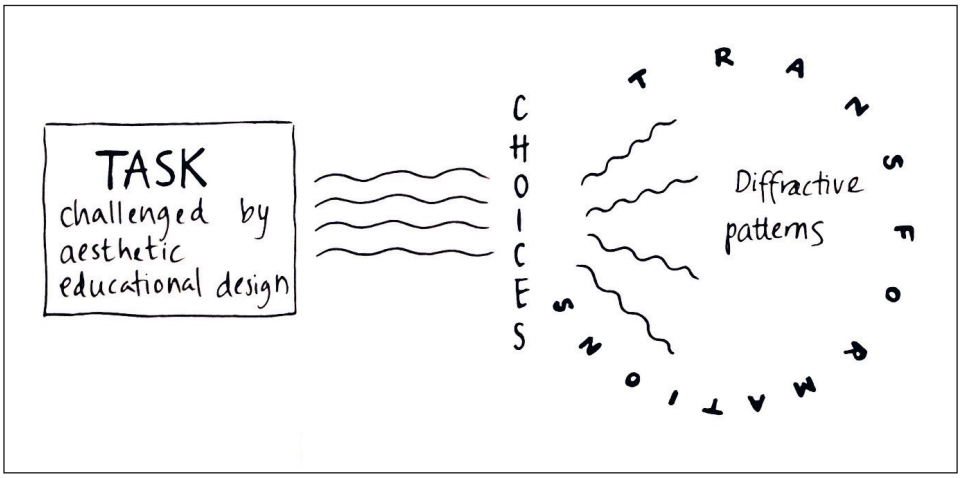


Fig. 3: A 'translation' of the diffractive analysis principle with different transformations, learning processes and outcomes. (Idea A.L. Østern; design Stølsdokken Østern)

The Materiality of the Tasks as Agent

The materiality of the craft or the art form of each task makes the inquiry diffract in different directions, making new understanding emerge. When a three-dimensional triarama scene is formed, it invites artful inquiry regarding the theme in question. Examples one, two and three expose the multimodality (feature 3) of the task, both in choosing the elements to use to build the scenery, and the narrative connected to the scenery. One option could also be to let the scenery come alive, or a particular perspective could be chosen. Confli ting feelings can be embodied (feature 2) in the triarama scene. The paint and form of the wings are negotiated and realised by the participants, loaded with affects, and the selfies and the imagined fli hts can diffract in different directions, promoting more, or less, depth. The task makes the participants connect both with each other and a larger community (feature 5). The space, time and materiality intra-act, co-constituting the learning process as event. In the tasks I have now identifi d the importance of the teacher's relational work, and of materiality. In figu e 9, I have 'translated' the analysis to a model using diffraction as a methodology. Th s model can be a result of reading with theory. It visualises how the tasks are challenged by the aesthetic educational design, leading to performative inquiry (the horizontal waves), with choices emanating in transformations of different kinds that form diffractive patterns. The diffractions are different for every group's processes and solutions.

Each of the tasks can be connected at least to materiality and relation, and it is also possible to identify some features of aesthetic educational design in each one of the tasks. The embodied learning (feature 2) can also be considered in each task. Even if you produce a three-dimensional triarama, or paint wings, or tell a story about escape, the tasks invite bodily learning, because they can connect to the students' life experiences, which encourages affects to be sensed.

Ethical Considerations and Second Thoughts

I feel that my language is stuttering, vibrating with potential meaning, as I am producing a piece of research on how the artistry of the teacher in intra-action with the participants and materiality might enhance Storyline pedagogy for the next generation, contributing to deep learning. When addressing the potential for deep learning, I connect to the artistry of the teacher, and this is a central point in this text. It is no easy fix to develop artistry as a teacher. It demands courage and strength to make yourself competent in some art form, in order to be able to apply an aesthetic educational design. The teacher will need to learn a new professional attitude towards what it takes to inspire students to explore in aesthetic and artistic ways. It might lead to a transformative learning process for the teacher as well: in recognising that planning and tasks can be performed with new habits of mind.

Depth in Teaching Studied through the Lenses of Aesthetic Educational Design – But with No Safe Place for Doing this

It is possible to identify the sought-for depth in teaching Storyline with concepts from the theory of aesthetic educational design, but there is no safe place for doing this. It demands from the teacher daily planning, exploring, and the courage to introduce the ways suggested in aesthetic educational design. The theory can support the students' explorations in aesthetic and artistic ways. Tochon and Busciglio phrase it in terms of striving to leave the world a better place than we fi d it in, for our future and the futures of our students (Tochon & Busciglio, 2017, back cover). I suggest that a developed artistry of the teacher might be one aspect of enhancement of Storyline pedagogy in the 21st century.

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I want to thank Anette Stølsdokken Østern for sharing her work with the triarama scenes about Nordic mythology and the Vikings. Finally, thanks to all the students, teachers and teacher educators who have participated in workshops exploring aesthetic educational design in teaching and learning.

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Chapter 17

From Acting to Action

Transformative Learning for Sustainability through Global Storylines

Diana Ellis

Prologue. It was morning in the village. Mist hung over the valley and the tree-covered lower slopes of the mountain were only just visible, while the peak soared above the landscape. In the distance, the pink rock began to catch the light and seemed almost to sparkle. The sun had just risen and the people of this remote and self-sufficient community were preparing for the day. They live in an area of outstanding natural beauty, which provides a unique habitat for particularly rare plants and wildlife. The human inhabitants love and protect the precious place and all the life it supports, and they use one of the special local animals as the emblem to represent their community.

Over the years the community have developed many ways of living in harmony with the plants and animals with which they share this place, and they keep a close eye on the numbers, using the latest technology. Many years ago, they purchased the area of land where they live and work from the landowner who lives overseas. He still owns the surrounding forest where he makes money from logging, and they have a positive relationship with him. As well as their main work, as farmers or doctors, teachers or builders, each has a particular role in looking after and protecting the local ecosystem.

In many ways, life was uncomplicated, dictated by the seasons and the length of the day. But the people were not without sophistication and many ingenious technological solutions had been found to make the best use of local resources. On that morning, as usual, bird life was being monitored, fields were being planted and many other routine tasks were being undertaken. As usual, too, the islanders took time to stop and pass the time of day and to chat about the latest news and events. But this was not going to turn out to be a usual day. Indeed, on this day, the life of the community would change forever …

Based on Episode 3 of *The Discovery* Global Storyline, 2018.

Introduction

Th s chapter builds on previous Global Storylines work by Dr Marie-Jeanne McNaughton and Diana Ellis (McNaughton & Ellis, 2016). It focuses on the development of new Global Storylines in response to new global concerns, and the accompanying new Professional Learning. The chapter is structured to address the following key questions:

i) What are Global Storylines?
ii) What new Global Storylines have been written?

iii) How has our approach to training teachers in the Global Storyline methodology changed?
iv) What are the challenges and next steps for Global Storylines in Teacher Education?

Based on a decade of working in this fi ld, we think that a Global Storyline is one of the most powerful and transformative learning experiences that a teacher can facilitate in order to affect attitudinal and behaviour change towards a more just and sustainable future.

> *Humanity's 21st century challenge is to meet the needs of all within the means of the planet. In other words, to ensure that no one falls short on life's essentials (from food and housing to healthcare and political voice), while ensuring that collectively we do not overshoot our pressure on Earth's life-supporting systems, on which we fundamentally depend.* (Raworth, 2017)

Th ough Global Storylines, learners are able to understand, and empathise with, the plight of their people, in their story, and with those affected by the same issues in the real world: they had 'been' these people. Th s provides a frame through which to view highly complex issues and events. Each story ends on a note of hope, though not one of unrealistic optimism, and offers opportunities for learners to take real action on the issues they have explored so closely. Teachers say they are changed by the experience, and then see their role as educators through a different lens, incorporating drama and Learning for Sustainability into as much of their planned lessons long after the Global Storyline is fin shed. But what exactly do Global Storylines involve?

What are Global Storylines?

The Global Storylines methodology was originally developed in 2010 through a three-year project funded by the UK Department for International Development. The project delivery partners were the West of Scotland Development Education Centre (WOSDEC), specifi ally Diana Ellis, and the Education Department at Strathclyde University, specifi ally Dr Marie-Jeanne McNaughton, who had worked alongside Steve Bell and Sallie Harkness during the early development of the original Storyline methodology.

Global Storylines use a unique drama-based pedagogical approach which enables learners to deeply engage in specific universal human rights and global sustainable development issues.

Each Global Storyline takes the traditional format of a Storyline (Bell, Harkness et al., 2007), however, there are two key differences between a traditional Storyline and a Global Storyline:

1. The character development and narrative within each episode is driven by Educational Drama rather than pictures on a frieze
2. 'Out of character', learners explore how real-life communities tackle the fi tional issue using Critical Global Citizenship methodologies.

Img. 1:
Promotion Photograph from 2013.
Credits: St Patrick's Primary School, Glasgow.

Although these two could each be added to a Storyline without the other, their combined use is particularly powerful. The text used above to open the chapter is the narration into an episode (scene) in which the teacher plays the role of a member of the community who discovers a rock containing sparkling hues never seen before … what could it be? What could this discovery mean for the community?

Using Process Drama, the Storyline characters 'step out of the picture' (McNaughton 2007). Teachers employ specific theatre conventions that harness the natural ability of young people to improvise and pretend to be in the shoes of others. The teacher also plays the part of a character in the story, using the 'Teacher in Role' drama technique:

> *The strategy of teacher-in-role allows the teacher to take part in the improvisation with the learners, often in a low-status role, seeking help or advice from the learners' characters, or playing devil's advocate.* (McNaughton & Ellis, 2016)

These additions to the traditional storyline approach mean that learners connect with the narrative more deeply, and, in parallel, are exploring the issue in the 'real world' more deeply in order to bring their learning back to their character's role for the next episode:

> *A key feature of educational drama, and one that is central in Global Storylines, is reflection time, which allows the participants to look back, out of role, and critically reflect on their characters' actions and responses during the drama activities.* (McNaughton & Ellis, 2016)

Img. 2 Learners creating a machine in drama, 2012. Credits: Wallacewell Primary School, Glasgow.

Img. 3: Learners debating which direction the story should go, 2012. Credits: Corpus Christi Primary School, Glasgow.

Img. 4: Learners protesting about the mining company. Credits: Scotstoun Primary School, Glasgow.

The episodes are written with clear 'post-drama' instructions for participative methodologies that develop critical thinking, creativity, empathy and a passion for social and environmental justice when learners explore the issues outside of the story (see Appendix 2). Crucially, each Global Storyline provides next steps for taking action on the specific issues explored, empowering learners and developing their sense of agency and political voice.

Th oughout the initial project, written, oral and photographic evidence had been collected, including teachers' refl ctive logs; recordings from teachers' refl ctive focus group discussions; interviews with groups of pupils; interviews with head teachers; pupil's written and drawn work; and photographic and video evidence of pupil involvement. Analysis of this research data demonstrated that:

> *The [Global Storylines] approach can contribute to an alternative environmental education paradigm, one that provides more positive, optimistic, action-oriented views of environmental issues.* (McNaughton & Ellis, 2016)

Additionally, an independent assessor was appointed to scrutinise the project implementation and to look, in particular at the potential impact of the project on all parties involved:

> *It is evident that not only has the experience changed participants' way of teaching, for some it has changed their outlook, beliefs and actions. The teachers now are passionate about global learning and recognise that children's learning is deeper with Global Storyline compared to previous approaches they have used. They are enjoying teaching in this way* (Warren, 2013)

The Global Storylines developed during this initial project phase were:

The Giant of Thistle Mountain
The Water Source
Our Crop, Our Land

The Giant of Thistle Mountain

This was our first Global Storyline, and we based it on a storyline that had already been written by Dr Marie Jeanne McNaughton to include drama. During the update process and the incorporation of Global Citizenship activities out of character, we changed some content to the original story.

Global Citizenship Issue:

The need to belong and feel valued within a community is vital to our wellbeing. Understanding our interdependence and developing our 'interconnectedness' is a key factor in building thriving communities: it allows us to become more resilient and 'bounce back' from adversity, prejudice and discrimination. Studies have demonstrated how a deep sense of 'interconnectedness' with our immediate communities motivates us to actively participate in promoting social justice and equity for marginalised groups both locally and globally.

Context for Interdisciplinary Learning:

A mountain community enter a competition for 'best village'. However, their plans are thwarted by the presence of a troublesome giant who is making a big mess when no-one is looking. How do they cope? First they are scared of the giant, then they realise he is just 'different' and frightened – can they integrate him into their community?

The Water Source

Global Citizenship Issue:

Environmentalists and scientists agree that water security is a key global environmental and social issue of the 21st Century. 1 out of 10 people still lack access to improved water sources and 2.5 billion people still lack access to improved sanitation (WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2012).

Context for Interdisciplinary Learning:

A community in the future offer refuge to people who have become displaced as their water supply has dried up. How do the new community share the resources? What happens when the new community also begins to suffer from water shortages?

Our Crop, Our Land

Global Citizenship Issue:

The 2008 spike in food prices triggered a rush in land deals. While these large-scale land deals are supposedly being struck to grow food, the crops grown on the land rarely feed local people. Instead, the land is used to grow profitable crops—like sugarcane, palm oil, and soy—often for export. Two-thirds of these agricultural land deals are in countries with serious hunger problems. Some of these deals are what's known as land grabs: land deals that happen without the free, prior, and informed consent of communities that often result in farmers being violently evicted from their homes and families left hungry. The term "land grabs" was defi ed in the Tirana Declaration (2011)by the International Land Coalition, consisting of 116organizations from community groups to the World Bank. Protecting and expanding indigenous land rights and community ownership of land is vital in combating poverty and hunger, and for the preservation of cultural diversity. (Oxfam, 2016).

Context for Interdisciplinary Learning:

The story takes place in an imaginary farming community where everyone farms the same imaginary crop. Each year around harvest families budget for their needs for the following year. They take their crop to market and experience the vagaries of fluctuating prices. Th s is the driver for learners to explore how trade operates and how vulnerable farmers are. At this point, younger learners can explore Fair Trade and the potential for their characters to become a Fair Trade Co-operative. For older learners, a potential solution then occurs in the story when a developer wants to farm their land for another crop, offering the farmers jobs with a stable income. Out of character learners explore how land grabs marginalise the land rights of local communities, compromise food security of host countries and ultimately deprive them of their own natural resources. Vitally, the out-of-character learning also explores how some communities affected have won their land back through peaceful protest and civil courts. With this knowledge, the learners plan how their characters will empower themselves and take action.

What New Global Storylines Have Been Written?

At the beginning of the project, Scotland was getting to grips with the new 'Curriculum for Excellence (CfE)', which was a move back to integrated topic planning across disciplines. Th ough feedback from our project teachers we spent the few years following the project revising the original stories to take on board new planning guidance for curriculum developments in Scotland (Appendix 1). We were also conscious of the Syrian refugee crisis and the rise in Islamophobic racism in 2015, which gave urgency to our updating of the Giant and Water stories to refl ct the global and local contexts more accurately.

By 2017 Dr Marie Jeanne McNaughton had retired, handing over the mantle of the drama expert to WOSDEC. We were keen to offer a new story in order to widen the

choices of stories on offer for teachers already trained in the methodology, as well as the opportunity to pick up on other global issues and connect with new educational initiatives. At this point in time we were conscious of the Scottish Government's commitment to renewable energy, as well as the growth of digital and STEM learning (Science, Technology, Engineering and Maths) in schools.

Further education initiatives in Scotland were being rolled out to schools. An appetite was growing for Teacher Education that equips practitioners with the practical tools to deliver '*Learning for Sustainability*' (LfS) within the curriculum. LfS was named by the Scottish Government as an 'entitlement for all learners' (Scottish Government, 2016), and this is reflected within the self-evaluation framework used for school inspections (Education Scotland, 2015) and within the General Teaching Council of Scotland's Professional Standards (GTCS, 2015), against which all teachers in Scotland must reflect annually with their line manager in order to maintain their place as a registered teacher, qualified to teach in Scotland.

Schools were also beginning to work with curricular materials for the UN Sustainable Development Goals, launched in 2015. There was clearly a strong mandate for Global Storylines moving forward. We revised our existing stories to incorporate an exploration of the goals and emphasis the goal(s) for which each story particularly focused. We then wrote two new stories.

Whose Water, Whose Power?

Global Citizenship Issue

The first new story we wrote together was 'Whose Water, Whose Power?', for teachers on the 2016–17 Professional Learning Programme with us. This story explores how dams are frequently portrayed as the panacea needed for raising living standards globally. However, many large-scale dam building projects violate the human rights of indigenous communities, destroy livelihoods and irreparably damage the environment. They are often built in areas of the world where the rule of law is weak or where affected people have little power in decision-making (International Rivers, 2014). Empowering citizens is key to achieving Goal 10 of the Sustainable Development Goals (Reduced Inequalities).

Context for Interdisciplinary Learning:

The story takes place in an imaginary mountain community where everyone is dependent on water from the river. The community are responsible caretakers of the water they take from the river and understand its importance to their community's well-being. However, developers want to build a dam to meet the supply for clean water in the nearest city. How will this affect the mountain community? Learners explore the advantages and disadvantages from multiple perspectives, including those who risk losing their mountain homes if the dam goes ahead.

The Discovery

The second new story we wrote together was 'The Discovery', for teachers on the 2018–19 Professional Learning Programme with us.

Global Citizenship Issue:

Raw materials mined and quarried from the Earth underpin everything we do and everything we need to survive and enjoy life – particularly now we have such a strong relationship to digital devices. However, mining often takes place in the least economically developed countries, exploiting people (including children), causing extensive damage to the ecosystem and in some cases funding armed confli t. Can the mining industry respect human rights and operate sustainably? Th s is key to the achievement of Goal 12 of the UN Sustainable Development Goals (Responsible Consumption and Production).

Context for Interdisciplinary Learning:

The community is set in a unique habitat which supports some very rare wildlife. The community live well and the people are proud and protective of their special ecosystem. One day a mineral discovery is made which changes their lives. A large development is proposed for extracting the mineral, but this could cause untold damage – what do the community do? Out of character, learners explore the supply chain for mobile phones and how Fairphone have managed to demonstrate that there is a demand for a digital industry that respects Human rights and promotes sustainability within a circular economy.

How Has Our Approach to Training Teachers Changed?

We now have over 10 years of expertise in developing these stories, training teachers to implement the approach with their learners, monitoring impact and refl cting with us and each other on progress. What we have found through the years of both formal research and informal practitioner enquiry is that Global Storylines help both teachers and learners to explore their own values, deepen their understanding, extend their skills and overall their commitment to play a positive role in "*transforming some of the big environmental, social and economic issues facing humanity in the 21st century*" (McNaughton & Ellis, 2016).

Background to Our Global Storylines Professional Learning Programme

Over the three years of the original funded research we piloted the fi st three Global Storylines with a total of 75 teachers across 43 schools, reaching 2156 learners (McNaughton & Ellis, 2016).

Img. 5: Frieze from Whose Water, Whose Power? Credits St Denis's Primary School, Glasgow.

The original idea was that a cohort from these project teachers would provide peer support and training for new, interested teachers after the project. However, this proved not to be a viable approach. Firstly, the teachers involved had very little extra time to commit to this, and there were no resources available to allow them time away from their teaching commitments to take up a 'tutor' role. Secondly, the teachers themselves professed to not feeling ready for this role. We recognised that developing a new Global Storyline and training new teachers involves a particularly deep understanding of the unique combination of global issues, Global Citizenship methodologies and Education Drama pedagogies. The agreed legacy therefore emerged as a year-long training course for teachers, to be delivered by WOSDEC in partnership with Dr Marie-Jeanne McNaughton, until Marie-Jeanne's retirement in 2016.

Since completion of the original pilot in 2013 we therefore delivered annual Global Storylines Professional Learning programmes for teachers in Scotland, both in Glasgow and neighbouring municipalities. These programmes run for a full academic year. Participating teachers have Professional Reading to undertake, as well as the face to face training in the method, and structured refl ction sessions during and after their implementation of the Global Storyline with their learners. All participating teachers submit their own Learning Journal with their fi al refl ctions.

I don't believe that any other approach to teaching the topic would have had such a commanding impact on the learners. I have been given the skills to lead learning in directions

> *I had previously feared, and now realise what a powerful tool drama is for engaging learners and providing them with a voice. [My students] have become more reflective and [our dialogue] is now much more meaningful* (Teacher participant on 2017 Global Storylines Professional Learning Programme).

The vast majority fulfil our requirements and meet the criteria for us to award them Professional Recognition in LfS on behalf of the General Teaching Council for Scotland. Each year the Professional Learning Programmes focus on a different story. These have included adaptations of the original six stories and a new story exploring the advantages and disadvantages of mega dams. Th ough these programmes we've worked with a further 220 teachers, reaching approximately 6000 learners. We continue to gather evaluative data within our Professional Learning Programme through a combination of teacher surveys and focus group discussions.

Further afi ld, we trained teachers and teacher educators in other countries, including Iceland during the 2012 Storyline International Conference, and the Czech Republic between 2013 and 2015. The Czech Education Ministry funded Nazemi, our sister Development Education Centre in Brno to commission us to train the centre staff, project teachers and University ITE lecturers through a scaled down version of the original Scottish project. Th s was also highly successful and has left a legacy of Storyline teacher education ongoing within Brno and beyond.

Updating Our Professional Learning Programme

Following consultation with teachers, in 2018 we introduced a new requirement for the course that reduces workload at the end of the school year. We now ask participants to complete a series of short formative assessments within a teacher Professional Learning Log rather than a large essay submission at the end of the course (Appendix 3).

The content of our training days has also changed in recent years. We make much stronger connections with the UN Sustainable Development Goals and the UN Convention on the Rights of the Child. We take more time to give participants the opportunity to practice their 'Teacher in Role' parts and give much clearer guidance on how to implement this key drama technique. We also make clearer connections to the skills development throughout the story within the planning documents, as well as opportunities for assessing progression of learning.

There is something enduring about the Global Storyline approach. Even through changing education priorities at local and national levels, a fl w of passion has persisted, meaning that teachers who are trained each year encourage their peers and the 'word of mouth' continues. We know that this can partly be explained by the integrity of the method itself. However, for us, like all good pedagogy between facilitator and learner, we feel that the continuing interest and enthusiasm for the approach ultimately comes down to the training and support that goes along with the story itself – this is the building of positive professional relationships. These positive relationships are not only between ourselves and our teachers, but also with those senior managers within municipality Education Services who promote us as key partners in Career-Long-Professional Learning for their staff. The Professional Learning programme we offer is unusual in that face-to-face small group mentoring and support is integral.

In both 2017 and 2018, WOSDEC were presented with an 'Excellence in Professional Learning Provision' award from the General Teaching Council for Scotland for our continued work on Global Storylines.

What are the Challenges of Global Storylines within Teacher Education?

As many readers will know, Storyline began in Scotland, yet it is now more widely used in countries outside of Scotland. There are many reasons for this, including curriculum change and the move towards a Masters Level Profession in Scotland. However, we observe the primary cause to be the retirement of key University staff such as Dr Marie-Jeanne McNaughton, who not only taught Storyline within Initial Teacher Education, but also delivered ongoing Continued Professional Development as an outreach Storyline tutor across schools in the West of Scotland. The tutors involved at this time built strong relationships with Local Authority personnel who promoted the approach. Sadly, these key municipality advocates have also retired.

So, we fi d that new teachers are qualifying without experiencing Storyline at University, and with very limited opportunity to experience this beyond University. 10 years ago, almost all our teachers came to us with an understanding of The Storyline Approach, excited to see how this could be enhanced by Drama and the participative methodologies of Education for Global Citizenship. In 2020 we fi d that almost all our teachers have no experience at all of Storyline. Th s requires that we educate our teachers in the principles and practice of the traditional approach before we begin supporting them to incorporate the enhanced model.

As WOSDEC are now one of the few deliverers of Storyline for experienced teachers in Scotland, we are aware of our responsibility to promote the method as far and wide as possible within our country, where the storyline journey began.

Moving forward with Global Storylines in the next decade, if funding allows, we hope to provide a new bank of evidence that we hope will have a wider influence on the rest of the country and extend the reach of Global Storylines. Although Learning for Sustainability is a current priority, it is often overlooked in favour of the Attainment agenda – which focuses on closing the poverty-related attainment gap (Scottish Government, 2015[1]). Explicit in this agenda is the pro-active development of children's Health and Wellbeing, given 1 in 4 children living in Scotland are living in poverty (Scottish Government, 2017[2]).

We have amassed considerable anecdotal evidence that while focusing on developing the skills of Global Citizenship, Global Storylines also have a noticeable positive impact on the wellbeing of learners. In particular, teachers report that the sense of agency young people experience through active engagement in real world issues has a meaningful impact on self-esteem. We want to be able to present more robust, empirical evidence of the positive impact on Health and Wellbeing. With research funding

1 https://www.gov.scot/policies/schools/pupil-attainment/

2 https://www.gov.scot/publications/child-chance-tackling-child-poverty-delivery-plan-2018-22/

we will focus on the potential of Global Storylines to improve Health and Wellbeing outcomes, specifi ally relating to communication, relationships and participation.

Given that Glasgow will host COP26 in 2021 for world leaders to move forward on global agreements to tackle the climate emergency, it is no surprise that the context for our 2020–2021 story has to be Climate Change. Th s particular Global Citizenship issue will present our most challenging yet in terms of writing. All our previous Global Storylines include examples of how communities have taken action themselves, often in partnership with global movements working in solidarity, in order to emancipate themselves from their situations. Communities affected by increasingly extreme weather events have very little opportunity to make their voices heard on a world stage to influence the decisions required by governments and transnational corporations if we are to achieve climate justice. As in all our Global Storylines, we must be very careful not to simplify the issue, ensuring we support teachers and learners to:

> *…recognise how we are implicated or complicit in the problems we are trying to address: how we are all both part of the problem and the solution (in different ways)…if we want to work towards ideals of justice, we need to understand better the social and historical forces that connect us to each other* (Andreotti et al., 2018)

Th ough this approach we must therefore also be careful not to promote ethnocentrism, ahistoricism, Salvationism or paternalism – all of which exist within some of the existing school material exploring Global Citizenship issues. Our task is to honour the truth of the climate situation whilst also providing hope for the future, which can be difficult for adults but is often much easier for children. Greta Thunberg and the school strikers around the world continue to inspire the younger generations. WOSDEC have a duty to harness this particular energy at this precious moment in time when teachers and learners can join with the global civil society movements calling for action while the eyes of the world are on Glasgow. We passionately believe that Global Storylines build the skills, values and attitudes needed to face this challenge.

Acknowledgements

We would like to fin sh by extending our gratitude to Marie-Jeanne for her vision and leadership, and now for her support as a Trustee of our charity. We continue with the integrity, commitment, humour and creativity modelled by Marie-Jeanne, without whom Global Storylines would not exist.

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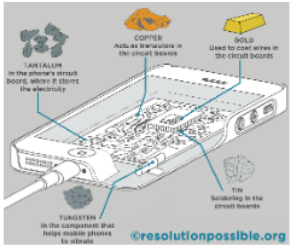
Appendix 1

Global Storylines

2018: The Discovery...what's yours is mined



Raw materials mined and quarried from the Earth underpin everything we do and everything we need to survive and enjoy life – particularly now we have such a strong relationship to digital devices. However, mining often takes place in the least economically developed countries, exploiting people (including children), causing extensive damage to the ecosystem and in some cases funding armed conflict. Can the mining industry respect human rights and operate sustainably?

Context for interdisciplinary learning:

The community is set in a unique habitat which supports some very rare wildlife. The community live well and the people are proud and protective of their special ecosystem. One day a mineral discovery is made which changes their lives. A large development is proposed for extracting the mineral, but this could cause untold damage – what do the community do?

CfE Experiences and Outcomes

First Level:

SOC 1-16a; SOC 1-18a
TECH 1-06a; TECH 1-07a
EXA 1-13a;
HWB 1-09a

Second Level:

SOC 2-08b; SOC 2-20a
TECH 1-06a; TECH 1-07a
EXA 2-13a;
HWB 2-09a

Benchmarks for both levels:

- Describes the basic needs of human beings.
- Identifies needs and wants using examples from their own experience
- Draws valid conclusions as to why some countries can meet these needs better than others.
- Describes at least two advantages and two disadvantages of a land use development proposal.
- Makes informed decisions on an issue having listened to others.
- Demonstrates an understanding of how technologies affect and impact the environment.
- Conveys a character using characterisation techniques such as hot seating and thought tracking.
- Creates a short drama using improvisation, from a given stimulus, and working collaboratively.
- Presents an informed opinion on rights and responsibilities using their own experience.

Appendix 1 continued

Key Experiences and Outcomes:	Learners will... *(including skills development in bold)*
HWB 1/2-09a As I explore the rights to which I and others are entitled, I am able to exercise these rights appropriately and accept the responsibilities that go with them. I show respect for the rights of others. **SOC 1-16a** I can contribute to a discussion of the difference between my needs and wants and those of others around me. **TCH 1-07a** I understand how technologies help provide for our needs and wants, and how they can affect the environment in which we live. **SOC 2-20a** Through exploring ethical trading, I can understand how people's basic needs are the same around the world, discussing why some societies are more able to meet these needs than others.	...**investigate, describe and record** wants versus needs and relate to the UNCRC as well as technology. ...**investigate** the Fairphone model of the circular economy and meeting the needs of those who mine and make our mobile phones.
TCH 1-06a I can take appropriate action to ensure conservation of materials and resources, considering the impact of my actions on the environment. **TCH 2-06a** I can analyse how lifestyles can impact on the environment and Earth's resources and can make suggestions about how to live in a more sustainable way. **TCH 2-07a** I can make suggestions as to how individuals and organisations may use technologies to support sustainability and reduce the impact on our environment. **SOC 1-18a** I have participated in decision making and have considered the different options available in order to make decisions. **SOC 2-08b** I can consider the advantages and disadvantages of a proposed land use development and discuss the impact this may have on the community.	...**investigate** the social justice and environmental issues inherent in the mining industry - **compare and contrast** how miners can be disempowered or empowered depending on where they live ...**explore and evaluate different types of sources and evidence** around legal and illegal mining operations ...**extract and analyse relevant information, think critically, discuss and hold an informed debate** in character about whether to sell the land to the mining company or not. ...**investigate multiple perspectives to develop their own reasoned point of view** on what is 'sustainable development' and our relationship to digital devices, including the linear economy and 'e-waste' ...**develop their oral, written and multimedia presentation skills** to demonstrate interdependence and the technologies supply chain
EXA 1/2-12a I enjoy creating, choosing and accepting roles, using movement, expression and voice. **EXA 1/2-13a** Inspired by a range of stimuli, I can express and communicate my ideas, thoughts and feelings through drama. **EXA 1/2-15a** I can respond to the experience of drama by discussing my thoughts and feelings. I can give and accept constructive comments on my own and others' work.	...apply their creative skills to **improvise and produce** complex pieces of process drama ... **evaluate constructively** their own drama work and that of others, suggesting how it can be improved ...**demonstrate respect and empathy** for each other, the characters in the story and the lives of miners in the real world.

Appendix 2

Drama Scene 3: The Discovery

It is several weeks later. While working in a remote part of the local area, a community member finds a rock with unusual markings/veins of a shiny substance running through it. As s/he explores finds more of this substance. There seems to be much more below the surface. A community meeting is called to discuss what to do next. They decide to send the material off to a science laboratory to be identified. Until the substance is identified, the community will keep the discovery to itself.

Roles/Conventions	Drama Activities
Learner roles: People of the community **Conventions:** Overheard/seen character (TiR); Gossip/overheard conversation Whole-group improvisation with teacher in role Meeting in role Still image Narration **Teacher-in Role (TiR):** *Community member who makes discovery*	• Explain that this scene will take place in a remote part of the local environment, almost at the edge of the community's land. Explain that you will be in role as someone from the community – use a different signifier. They will watch you, but your character won't know s/he's being watched, so learners should not speak to you. • Narrate in your own words *"It was a typical day in the community and all of the people were going about their daily tasks and taking time to also look after the environment."* As TiR you should mime working, cutting down excess growth under trees/shrubs. After a few seconds, bend down to examine something that is lying on the ground (a rock/stone, perhaps). Pick up this imaginary something and, speaking to yourself, describe/admire it (*"What strange colours. I've never seen anything like this. I wonder if it's valuable.* etc"). Use one of your tools to scrape away foliage and scrape at the rock – exclaim that there seems to be a lot more under the surface. STOP THE DRAMA. Discuss what just happened. What might have been found? What should the community member do next? • Explain that the class are going to create a community gossip scene where all of the community are speculating about what the discovery might be and what it might mean for the community. They must walk around the room and then meet someone and talk about the discovery (**pairs improvisation**). What is it? How did it get there? What does it do? What might we do with it? They must spread any news/gossip they have heard. Narrate: *"Soon the news of the discovery spread around the whole community. Everyone was gossiping about what it might be and what it's discovery might mean for them."* Pairs talk for a few seconds then, on your instruction, move on and meet someone else. After several "encounters", and in the middle of one, say "freeze". Explain that you will circulate and when you touch a pair on the shoulder they must bring their conversation to life for a few seconds. You will signal for them to stop and move on to another pair/trio. STOP THE DRAMA. Discuss the reactions of their characters. Decide (with prompt if necessary) to hold a community meeting to allow ideas and reactions to be aired. • Set up the space for a community **meeting**. Narrate in your own words: *"All week the discovery was all everyone was talking about. The finder had promised to bring it to the next community meeting. It was the first thing on the agenda". Bring the scene to life!* As **TiR**, pass the imaginary discovery around and ask for reactions and suggestions about what should be done next. After a while introduce the idea, if it hasn't been suggested already, of seeking advice from a specialist mineral laboratory. Seek agreement that this should take the form of an email from the community leader, and that the community should keep quiet and tell no-one of the discovery until more is known. STOP THE DRAMA.

Appendix 2 continued

Global Citizenship								
K&U:	Social justice & equity	Identity and diversity	Globalisation and interdependence	Sustainable development	Peace and conflict	Human rights	Power and governance	
V&A:	Self-esteem	Commitment to fairness	Respect	Value diversity	Concern for the environment	Value participation and inclusion	Belief people can bring about change	
Skills:	Critical and creative thinking	Empathy	Self-awareness	Communication	Co-operation & conflict resolution	Manage complexity & uncertainty	Informed & reflective action	

Storyline	Key Questions	LIs *Teachers to add as appropriate*	Learning activities *Teachers to adapt as appropriate*	Assessment
Episode 3 THE DISCOVERY	• What has been found? • What could it be? • How do we find out what this is? • What are metals and minerals? • Where are metals and minerals found and how are they removed from the ground?		• Facilitate Drama Scene 3 • Learners compose a class email to be sent from the community leader to laboratories asking for advice, giving details about where it was found, etc **First level** • Classify objects as natural or manmade? Use feely bag objects or the simple materials sorting activity at www.bbc.com/bitesize/articles/z2bdjxs • Match the metal/mineral to its use in everyday life- bring in objects to represent tin (thin coating on cans of food), copper (wiring in plugs), gold and silver (jewellery), cobalt (batteries) etc. www.bbc.com/bitesize/articles/z9pgcdm • Explore rocks and minerals using: www.dkfindout.com/uk/science/materials/metals/ www.dkfindout.com/uk/earth/rocks-and-minerals/metals-from-rocks/ **Second level** • Explore virtualquarry.co.uk/ and digintomining.com/metals-your-everyday-life • Each family grouping should investigate one of the following metals or minerals: tantallum, copper, tin, gold, tungsten, silver, cobalt. They should create a presentation for the class, including the scientific name, and how it is used in everyday life. www.nms.ac.uk/minerals www.resolutionpossible.co.uk/our-work/research/minerals • Learners write second entry in the character diaries	How do learners demonstrate their skills in analysing and selecting information they need and presenting to others?

Appendix 3

Professional Recognition in Learning for Sustainability (Global Citizenship)

Outcomes

By the end of the course, you will be able to:

1. articulate your personal and professional understanding of Global Citizenship within Scottish Education
2. demonstrate a critical understanding of current national and international drivers behind policy and practice
3. critically analyse academic perspectives on Global Citizenship within Education
4. implement and critically evaluate the impact of a series of new experiences for learners which explore key themes of Global Citizenship (the Global Storyline)
5. demonstrate how the course has challenged your own values and assumptions, and informed new approaches to planned curricular learning experiences
6. demonstrate greater confidence in leading whole school Global Citizenship initiatives
7. share professional learning and course experience with your wider school community, supporting next steps planning for whole school development.

Assessment

Participants will be assessed against the seven outcomes of the course through the following methods:

Formative: Professional dialogue supported by Portfolio of Pupil Work

Summative: Learning Journal Entry 3 (January submission) and 6 (June submission, including notes from Professional Discussion with Line Manager)

These assessments will be undertaken by the course mentors and moderated by David Hughes (HT Thornlie Primary) and Jane Cerexhe (HT Oakgrove Primary), appointed External Evaluators of the course to ensure quality in the Professional Recognition process.

A minimum of 80% attendance is required. Where a course participant is facing challenges in meeting the course requirements, course mentors will, through dialogue and one-to-one support, provide tailored guidance as far as practicable. If the quality of a summative assessment does not meet our criteria, we may ask for submission of the full Learning Journal. If, after this, any participant is still unable to meet course requirements, the award of Professional Recognition will be withheld.

Appendix 3 continued

<table>
<tr>
<td>Entry 4

Jan – Feb</td>
<td>Record your reflections during the implementation of the Global Storyline. Please make notes at the end of each episode in the space provided in the planner, then use these to answer these questions that will be asked at the first reflection session in February:

What have you enjoyed so far about the Global Storyline? Why?
What do you think the pupils have gained so far? Why?
What has been a challenge so far? Why?
Have there been any surprises so far?
What would you do differently if you were to teach up to this point again?

Please also record your thoughts after you have attended the reflection twilight in February.

What did you discuss during the professional dialogue with colleagues?
Did your conversations challenge any of your assumptions or give you new ideas?

So far, the Global Storyline has been…</td>
<td>Core reading

McNaughton, M.J. & Ellis, D. (2016) Global Storylines: The World in the Classroom; The Classroom in the World In Mitchell, P.J., & McNauhton, M.J. (Eds), Storyline: A Creative Approach to Learning and Teaching, Cambridge Scholars Publishing

Emo, W & Wells, J (2013) Storyline: Enhancing learning and teaching through co-constructed narrative Paper for 2013 Storyline Conference.

Further reading
McNaughton, M.J. (2014) From Acting to Action: Developing Global Citizenship Through Global Storylines Drama, The Journal of Environmental Education, 45:1, 16-36

GTCS Standards for CLPL

3.3.1 Develop and apply expertise, knowledge and understanding of research and impact on education

3.2.3 Lead and work with others to ensure effective practice in the assessment of learning, including a deep knowledge and understanding of the policies and practices of assessment as required by awarding bodies.

2.2.5 Critically engage with a range of educational literature, research and policy to make meaningful links to inform and change practice, where appropriate.</td>
</tr>
</table>

Chapter 18

How Digital Tools Can Be Used in Storyline

Ellen Romstad

Abstract: Can digital games be compared to digital Storyline? How can we bring interest and motivation for challenges, problem solving and exploration of students "game world" into the classroom? A Storyline's most important principle is to link students' learning to realistic scenarios where they learn through stories they fi d exciting. As in games, we show how with various digital learning tools we can let students experience and immerse themselves in communication skills, thinking skills and skills for life (Omand, 2017). With the help of thorough planning and professional, digital skills, teachers can give their students challenges and tasks in the form of key questions or professional loops. With a new curriculum that emphasises in-depth learning, a Storyline project can incorporate core elements in the subjects as well as the overall and interdisciplinary themes of public health and life management, democracy and citizenship, and sustainable development, thus bringing the central part of the curriculum's overall part. Teachers must have general, good digital skills and willingness to allow students to experience a learning environment characterised by collaboration, sharing and engagement. Here, digital learning resources are highlighted, with emphasis on how they can be used in the best possible way according to the principles of The Storyline Approach, combined with challenges and expectations of essential 21st century skills.

Keywords: Digital Storyline; digital tools; 21st. century skills; learning through assessment

Introduction

Digital Storyline as an Approach for Professionals to Address the New Norwegian Learning Standards/Curriculum/Core Competencies

When a teacher chooses to use the Storyline Approach (TSA) with their pupils as a pedagogical approach, they have a clear idea and plan for the goals, learning standards and competencies that can be developed and achieved. TSA provides good opportunities for formative feedback and fi al performance evaluations or grades. Storylines can be created through several mediums, but why not make a Storyline with an emphasis on digital tools? In a society where technology is making major changes within the classroom, digital technology and tools give students quick access to information. Students using a Storyline will have to work on analysing information within a subject. Th s is excellent, as critical thinking is of utmost importance for understanding facts according to the (national education ministry's) Directorate of Education's guidelines (Regjeringen.no. 2016–2017). According to Gilje, Flygt Landfald and Ludvigsen (2018), we are looking at a change in the learning landscape, where it will be especially im-

portant to give the students relevant skills before they start new projects. Teachers are expected to create ideal lessons using new teaching materials, methods and tools to learn with (Gilje et al., 2018). Great demands will be placed on teachers in the future, and this in turn will require teachers to participate in learning environments for collaborative learning and sharing. As a teacher it is important to have a collaboration space to share ideas with other educators. School researchers have called for better methods to achieve in-depth learning, which is highlighted as internationally important (Fullan et al., 2018) and also applicable in the new Norwegian curriculum starting in autumn 2020. Teachers can create in-depth learning by linking technology and TSA. Th s is because, when TSA is utilised, students are trained in several of the collaborative forms required by the new curriculum.

Th s way of learning is about developing a general understanding of concepts within subjects and, with proper progression over time, the learner accumulates important skills for learning. A teacher's digital competence will become more and more important in the future.

Omand highlights Storyline's opportunities to allow students to experience and immerse themselves in tasks where they train and become competent in communication, thinking, enterprise, and 21st century life. (Omand, 2014, p. 5). In other words, students must receive good training in digital judgment. Th s entails experience in privacy, copyright and information literacy. It is also important to highlight how digital competence has become more relevant in the upcoming curriculum, and our students must learn how to refl ct, be explorative and creative.

Imagine a platform where players face challenges they must solve using the rules of the game. A digital Storyline or a Wiki Storyline can be such a platform and, can be suitable for pupils in primary school. It can also be used by students in teacher education as we can easily increase the degree of difficulty according to age and proficie cy. Some of the apps, such as BookCreator can be used from both kindergarten and the early years, as well as in the upper school. Games can also help realise subject matter in a new and different way, by giving participants the opportunity to go into depth. In a Storyline, a teacher can guide students in one or more directions by using key questions where they have to make decisions. According to Omand, the key questions give learners an opportunity to develop the ability for creative thinking (Omand, 2017). Game educators also envision games that present subject matter in a new way, giving students multiple entrance gates to one and the same phenomenon (Nøsen, 2017). Th s can be compared to the challenges faced by learning from a Storyline. It is possible to fi d educational games that require you to master algorithmic thinking along with a good deal of mathematics to succeed in the game. The benefits of learning through such games have proven to be very motivating. One of the most experienced gaming educators in Norway is Magnus Sandberg. He says we have to dare to take advantage of the opportunities that games give us, and I would like to highlight elements of game pedagogy that can be transferred to this digital Storyline method (Minecraft Et undervisningsopplegg, 2020). As in games, a well-executed Storyline with varied digital resources gives the learners an opportunity to work interdisciplinarily to develop complex skills, with good opportunities for formative assessment. Th s is an inclusive way of

working where everyone can experience mastery and participation. Teachers who use TSA as stated in the guidelines from the Directorate of Education, can give their students in-depth learning as they develop their understanding of concepts and connections within a subject area. With the new curriculum, emphasis will be placed on three interdisciplinary themes, and all these three topics are well suited as a starting point, and as the academic focus of a digital Storyline. These are: democracy and citizenship, sustainable development, and public health and life management. Th s is where I see Storylines being able to fit in well, as they use key questions that provide learners with challenging assignments. They can then become 'students of a deeper understanding' when challenged and engaged in tasks where they analyse, solve problems, refl ct on their own learning, and thereby construct holistic and lasting comprehension.

Digital Tools and the Teacher's Professional, Digital Competency (PfDK)

In this chapter, I choose to include a variety of digital tools that we can use in the digital Storyline but will also mention and explain what a Wiki Storyline is, because it is a digital mode of work that can also be used. Digital technologies at all levels of education are constantly evolving, and teachers must update themselves and develop their professional, digital skills, their PfDK. The digital tools or resources used in school today may be out of date in a year or two. Rimmereide, Blair and Hoem (2011)have tried out Wiki Storyline in their initial teacher education at Volda University College, where the students have collaborated and published with Wiki as a digital platform. They have developed this method over several years, and they also highlight the great advantage that comes from varying digital tools to reach different learning goals. In particular, they have used the method to achieve written and oral goals in language training (Rimmereide et al., 2011).A Wiki Storyline is web-based and may be more suitable for students or older students in language learning.

It is also a service that involves advertising features where the content produced can be read by everyone, but Wiki has recently developed a solution for 'closed rooms' or closed learning platforms for classes with a greater opportunity to protect students' personal interests and integrity. It is crucial that teachers stay informed and develop professional digital skills when they are preparing students for the 21st century. They will then apply these skills to concrete projects in a digital Storyline. A digital Storyline is where the students themselves participate in choosing the appropriate digital learning resources or tools can be part of the learning process. But it will always be the teachers who have the big picture in mind, the overview, the fi al say and who must be well acquainted with the topic as well as the tools the learners will use.

The purpose of this chapter is to show how teachers can develop learning programs that build on students and students' already well-developed digital skills, and with that get them motivated and perhaps more engaged than one would get with a more familiar Storyline where digital tools are also included but are not the primary tool. The new curriculum emphasises even more than the 'old' LK06 in getting students to collaborate

on text creation, and teachers can choose to use websites like Google Site, Padlets or OneNote from Microsoft, as well as blogs. Rimmereide and others also consider Google Sites more modern than Wiki for teachers to administer. As in the new Norwegian curriculum, but also mentioned in several other countries (Fullan et al., 2018), six global competences are emphasised under the concept of in-depth learning. Teachers must facilitate learning activities where the learners have the opportunity to develop these. These are competencies such as creativity, collaboration, communication, citizenship, critical thinking and, not least, character (Fullan et al., 2018).

Higher Education Storyline

Østfold University College uses TSA for and with its student teachers and sees this as an opportunity to work on a method that student teachers can incorporate into their own teaching. For some students, initial training has been emphasised, and it is the opportunities for interdisciplinarity that are highlighted for the students. In the thorough planning of a Storyline, teachers can incorporate elements of game pedagogy. Th s is where the student envisions playing and moving in a gaming type world. The Storyline could incorporate a world where the student participates. By varying the digital tools, it is quite possible to incorporate the competency goals and skills we want students to live and immerse themselves in. But, if we are to achieve that, we must also allow student teachers to experience this as part of their own teacher education. Teachers at Østfold University College have planned and implemented a meta-Storyline on the theme *Storyline as an approach*. The purpose of this was to give the teaching students experience with a creative teaching method, where the students learn by being active and participating. Th s meta-Storyline is mentioned in an ideas booklet prepared by teachers and students at Østfold University College. The purpose was to assist the student teachers to prepare for good creative learning environments themselves. Such methods must be learned, and a creative teaching method such as Storyline can fulfil the 'requirement' that student teachers acquire knowledge of varied work methods (see, Karlsen Bjørnstad, & Høeg, 2016). One challenge student teachers need to consider includes attendance and privacy regulations which must be taken into account when it comes to eventual fi al publication (GDPR). Th s is an important competency to address. If future teachers learn to use Storyline, particularly digital Storyline, they will be better equipped to meet challenges future teachers must be prepared for. Knowledge of online privacy guidelines will be a natural part of future teachers' professional, digital skills.

How Can Students Experience In-Depth Learning with Digital Storyline?

In this chapter, I will highlight the benefits of a digital Storyline, and will present some selected apps, programs, and tools that can be good solutions for schools, colleges, and universities. Th s is similar to what is basic in Chapter 5 where the authors also highlight and use Lindström and the four dimensions of learning: Learning *about it*, *in*,

with and through. The use of digital tools are not only about learning, the students are learning in a way they can control and can go as deep as they are able to. Furthermore, I use the concept of digital tools to highlight functions that increase interaction as a basis for better learning. Fullan et al. state that it is not the digital tools themselves that provide learning or in-depth learning; but, together with the other three elements (1) educational practices, (2) learning partnerships, and (3) learning environment, digital tools support the process (Fullan et al., 2018). Teachers who use TSA or digital Storyline provide in-depth learning where students gradually develop their understanding of concepts and connections within a subject area (as recommended in the Directorate of Education guidelines.) In the new curriculum, emphasis will be placed on three interdisciplinary themes, and they are well suited as a starting point or as the academic focus of a digital Storyline. The three topics are:

- democracy and citizenship,
- sustainable development,
- public health and life management.

TSA thus fits in well with its approach to learning by using key questions that provide students with challenging assignments. They become deep-learning students and genuine learners when challenged. In addition, when students are engaged in tasks where they analyse, solve problems, and refl ct on their own learning they develop holistic and lasting understanding.

Digital judgment as well as competency as part of a teacher's professional repertoire will become increasingly more important in the future. Omand highlights Storyline's opportunities to allow students to experience and immerse themselves in tasks where they train and become better at similar skills in communication, critical thinking, life mastery, enterprise and employability (collaboration, community, ability to work on topics over time (in-depth learning) and information technology (Omand, 2014, p. 5).

Why and How Can Digital Storyline Be a Contribution to the Subject renewal and the New Norwegian Curriculum LK20?

Students can achieve the relevant competencies school researchers specify, while also becoming good text and story creators via multidisciplinary project work. Using TSA as a starting point, students could use SWAY, Padlets, BookCreator, make animated films with Puppet Pals, green-screen or VR/AR film, Clips, programming or code. The focus of TSA is the story. By using the course of action in a digital Storyline, students can take an active part in their own learning process. Th s is because in creating a fi - tional world they must apply their own knowledge. The key concepts can be illustrated digitally. Th s may facilitate the learning process, provide the appropriate amount of challenge as well as increase motivation. The models students create and the visualisation demanded within TSA reinforces the relationship with the fi tional characters, beings or roles that are created.

Most national curricula, in addition to Norway's, have an important say in developing an inclusive community that promotes health, well-being and learning for all. With a digital Storyline, but also with a Wiki Storyline, I imagine that we can have an even better dialogue between the students than we can with a familiar Storyline, because we can achieve a greater degree of interaction. In Chapter 1 the authors are referring to former studies and how TSA generates positive interdependence among the students. In utilising digital aids, the students have a relationship with and ownership of, a good starting point for creativity and choice is inherent. A Storyline can contain different subjects depending on the values or themes that are emphasised in each project. According to the new curriculum in Norway, in-depth learning can be done by working in different ways with the same theme. In order to involve students, the senses must be used in one or more ways. We must be aware and include digital platforms we know can engage both girls and boys. Most of the apps described in this chapter are also helpful for pupils with emotional difficulties. It is more about how we use them and not about which apps. Digital tools can provide our students with different interactive and exciting experiences and perspectives. These experiences may differ from a Storyline that doesn't utilise IT, because we give the students more and other opportunities to show their skills. For example, in Norway and in other Nordic countries, exploratory methods are encouraged, and this is facilitated with an interdisciplinary project like this. Based on my experience as a teacher for students with special needs I have seen this over and over again, for instance when a young boy started to make almost professional movies using iMove using his fellow classmates as the actors.

New Technology Requires Professional, Digitally Competent Teachers

An important goal for teachers, at all levels of education, is to be professionally and digitally competent. Teaching colleges have a responsibility to instruct teachers so that they can again teach their students how to use digital tools in the best possible way, as referred to in Chapter 4 as professional development. Th ough a digital Storyline, there are opportunities to teach students how to navigate and create a context in a world full of digital information, as Michaelsen envisions within the educational community (Michaelsen, 2019). In order for teachers to carry out good and effective learning in a technology-rich learning environment and to be able to bring IT, pedagogy and professional content together teachers must acquire three important skills:

- subject knowledge,
- pedagogy, and
- technology.

These are specifi d by the "TPACK" model developed by Mishra and Koehler. Th s again is a further development of Shulman's idea of Pedagogical Content Knowledge (PCK). At the heart of the TPACK model is the complex interaction between the aforementioned teachers' three most important skills. These emerge in the TPACK model as Professional Knowledge (CK), Education (PK) and Technology (TK) (Mishra & Koeh-

ler, 2007). These comprise the teacher's professional, digital competencies. While the emphasis was initially on subject didactics, today according to the researchers (Bjarnø, Giæver, Johannesen & Øgrim, 2017) the greatest pressure is put on the teachers' professionalism and pedagogy. Teachers require complex competencies in order to implement digital skills in line with curricula (Bjarnø et al., 2017). It is important to see this in connection to the study in Chapter 8, where the focus also was the development of the pedagogical content knowledge, there using TSA for teaching Primary School Mathematics. Together with TSA utilising SWAY or the BookCreator app, students can create digital stories. They can also be made using the Puppet Pals app to animate films. By using green screen effect, learners can create documentaries – and or fantasy films. With Clips and AR/VR technology, teachers can motivate students to create text through collaboration and dialogue.

Digital Working Methods towards New Curricula

With subject renewal and new curricula, the focus is on the content of the curriculum as well as the digital working methods utilised with students. Being professionally, digitally competent (PfDK) allows for subject exploration using creative themes and digital activity. In order to complete a digital Storyline, generally good IT skills are prerequisites so that the joy of creativity, dedication and exploration come to the forefront. Th s way of working is the ideal within the subject renewal, learning in a deeper way, or in-depth learning. Student teachers should have opportunities to try this out while becoming certifi d so that they can provide in-depth learning opportunities in turn for their students. Blikstad-Balas (2018) emphasises digital competence and willingness to plan the teaching based on what technology the students have available. Often it is the teachers' lack of knowledge that is a barrier to forward thinking systematic change, not access to technology. Since pupils in primary and secondary education are often 'alone' with the internet they become responsible for their own learning. Blikstad-Balas (2018) considers this and believes that teachers need to increase their own professional digital skills. It is necessary to be able to guide the students through the technology-rich landscape. She emphasises and envisions the classroom of the future where we are aware of students with Internet access to 'the whole world'. It is not ideal to allow students to navigate and fi d their own sources to use as the basis for further knowledge and learning. She emphasises how important it is for students to learn how to critically assess texts and sources. They must learn how to make academically reasoned choices, and again, she highlights that this is the teacher's central responsibility as the one who integrates technology in exploring subject material (Blikstad-Balas, 2018).

Examples of Good Digital Tools We Can Use

Kahoot is a game-based learning platform and can be used by both teachers and pupils to get an initial overview of what students have knowledge of but can also be used along the way or as a fi al evaluation. Omand is concerned with assessment, and emphasises

Img 1: Book Creator. (https://bookcreator.com/features/).

the opportunities a teacher has, while working on a Storyline, to see students' development of competence, skills and attitudes (Omand, 2014). To create a good classroom environment, a quiz like this should be collaborative, not just competing against each other. Throughout the project, teachers explore allowing students to 'train' using various activities they envision can provide in-depth learning. At the same time, they should look at how students bring knowledge and skills into new and challenging assignments.

BookCreator is an app where students create multimedia books to combine texts or comics with pictures, drawings, videos or their own recorded speech/audio. Students can write their own texts. They can also read or draw. Students often create texts or draw digitally in other apps, but some like to draw on paper. Pictures of these drawings can be placed into *BookCreator* and further worked on. Thereafter, the students can publish their multimedia books. Using the app or with the web version of *BookCreator*, students can document their progress and thoughts along the way. Students can also show off their digital books and share them with fellow students and family. Here both process and result are important, and I imagine that teachers can give continuous formative assessment both within the app itself as their own audio file, or within a separate sharing app such as *Showbie*, a useful web service that facilitates the workflow between teachers and students. It is used all over the world, mostly in the primary school.

SWAY is a web-based presentation program where older students create presentations by combining text and media. With *SWAY* you can retrieve photos and movies at the same time as you work, and *SWAY* suggests suitable images and movies for your presentation based on words used. *SWAY* alludes to being able to 'sway' through history by clicking your way down and is especially well-suited for touch screens. You may move or click your story in the direction you want. It can be shared with others via a

Img. 2: Puppet Pals. Credits: Ellen Cecilie Romstad.

link and is deemed appropriate to use considering the privacy regulations that we at school must take into account (GDPR).

PuppetPals is a digital puppet theatre app. Students can insert their own pictures, read in their own voice or add music. In a Storyline, the students will go into fi tional roles. Thus, they are given the opportunity to create their own characters, and give them voices, personalities and attributes. Considering the new curriculum theme of life mastery and public health, utilising a Storyline created as a digital puppet theatre, students may learn about the perspectives and feelings of others. It can be used by students from the youngest to the eldest. Maybe they will become better at seeing and understanding their classmates? Here it may be pertinent to step out of the Storyline itself and combine the role-playing with professional loops and in-depth class discussions, preparing for life in general.

GreenScreen is a simple app in addition to a feature in the *iMovie* app and for similar apps for androids and Windows. The point is to create reports and movies, and with a green background they can place themselves anywhere in the world or in any environment. Students can let their fi tional characters live 'their own lives', and the qualities, interests or abilities that are commonly presented as 'identity cards' in a familiar Storyline can be turned into a movie in which the characters must present themselves. Th s could take the form of an interview.

iMovie is an app for making movies that now also allows creation of greenscreen effects within the app. Here you can record answers to key questions, but also show maps

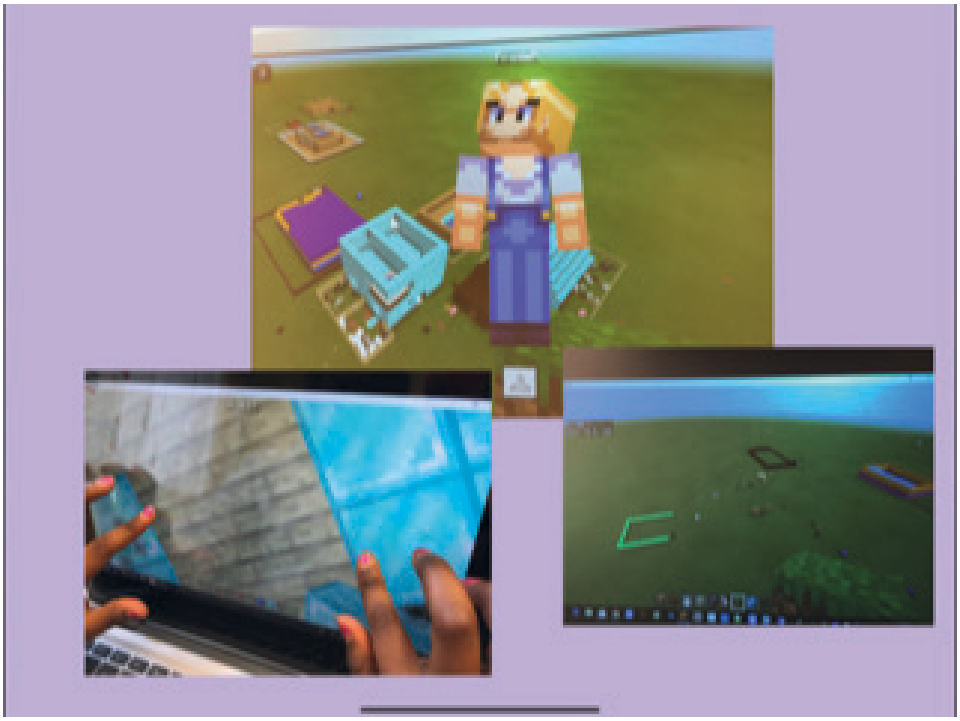
Img. 3: MineCraft Storyline 3. Credits Ellen Cecilie Romstad.

of the areas or places where the Storyline plays out. I imagine that a whole Storyline could easily be made with *iMovie* and video, speech with text, music and other effects. It's also possible to make a pre-formatted trailer summarising the entire Storyline. *iMovie* is for all ages.

Clips is an app for students in all ages, for producing and sharing videos with text, effects, graphics and audio. It is easy to add text while recording a video and can be a great choice for many students. By being able to dictate text that is automatically saved in the movie as 'subtitles' anyone can write and makes it possible for all kind of pupils to be able to write and say whatever they want, even if they have some learning difficulties.

MineCraft Education is an app where the game *Minecraft* is incorporated into the classroom. It is especially suitable for engaging students in learning through collaboration and communication, and also to work on critical thinking. Today, *Minecraft Education* is even used with second graders in Norwegian primary schools. Experienced teachers reiterate that the students do not 'play' computer games, they work seriously with mathematics, physical language and natural sciences. Furthermore, it is also possible to write reports in the gaming world, and by combining *Microsoft 'Learning Tools'* the text can be digitally read aloud (https://www.onenote.com/learningtools). The images 3 and 4 are included to show how ten-year-old pupils in Norway already use Minecraft, and I describe here in the article how to use it in a digital Storyline.

Students need future skills and competency in programming and coding. This can also be accommodated in a digital Storyline. With guidance, students determine appro-



Img. 4: MineCraft Storyline. Credits: Ellen Cecilie Romstad.

priate technology to bring action and relationships into their Storyline. Teachers may utilise a platform where students enter a game and are presented with challenges. This corresponds to the key plot of the Storyline, and this is something that can be done in many ways. If teachers are slightly ahead of students in programming knowledge, then they have the opportunity to present real challenges. With such a challenge, teachers can send students into a subject loop, where they have to work on the problem they have to 'solve', and then be drawn back into the Storyline. With the *GreenScreen* app or the greenscreen effect, students can answer 'key questions' and travel back in time using a movie they create themselves. Here I can take a look at what Omand says in Chapter 14, talking about questioning and how fundamental this is to the Storyline Approach. The sequences in a Storyline follow each other chronologically and are initiated using these open-ended key questions. By entering the Storyline in the *SWAY* app, I see many exciting opportunities. Leaving the Storyline 'open' in a *SWAY* will provide good opportunities for the development of learners' comprehension and critical thinking skills. The beginning or opening of a new Storyline is important. The teacher strives to be engaging or present a fictional situation at a certain time and place. Here all the digital aids I have mentioned could be useful. In order to introduce a new theme, teachers often utilise role-play. If the role-playing game is filmed, there will be something permanent that can be seen again and again. The role-play could also be a scene in one of the apps, like *Puppet Pals*. With a simple green background or screen, and this app on an

iPad, students can 'pretend' they are sent back in time. They can suddenly be spectators as exciting things happen!

VR (Virtual Reality) and AR (Augmented Reality) open up new ways to learn and experience. They employ visual senses and experiences that cannot be realised through other media. Being in a virtual environment can be useful e.g. for visualisation, aspect ratio and shapes, and for digital excursions. There are several opportunities to create and program content for VR and AR, and it is important that teachers know and can offer VR and AR as good experiences. A film made with AR technology results in an 'extra' layer of information, and students get to experience new ways of learning and experiencing – closely linked to the visual sense. With AR we can visualise sizes and shapes, and those who participate can go in and create their own universe. Here, too, it is possible to incorporate core elements and learning objectives from the curriculum, and this can have a good effect for students in the school with concentration difficulties. Based on earlier experiences working with pupils with ASD (Autism Spectrum Disorder) I can only see possibilities, not difficulties using this new technology. Augmented reality uses technology combining physical world data with virtual data, along with both graphics and sound. With the new curricula, the students will explore and look for patterns and fi d connections

Assessment – Why Use Digital Aids in Storyline?

Teachers can give formative assessments with digital tools, and in the process evaluate how students communicate and collaborate, just in the same way as they can grade the 'fin shed' products. Teachers can specify learning goals and determine criteria along with students and then assess whether or not they were reached. A success factor in using digital technology and success is to be aware of what students can achieve with various tools and to make use of them in relevant academic activities. Students may want to have access to a 'resource bank' delivered from and with available and digital technology, but there must always be clear academic goals during planning and while working. With the new curricula, pupils should be more active in relation to their own learning, and they must not only present the facts but also show that they can use information to analyse, evaluate or discuss. Our job as teachers is to teach students how to learn. With digital Storyline, we give students a good opportunity to do just this. Students' participation and co-responsibility in their own learning is a central theme in the new curricula. Our job as teachers is increasingly to facilitate learning-enhancing activities with the appropriate digital tools. We can also allow students to choose how they would like to demonstrate their comprehension on topics, as well as self-evaluate. Teachers integrate the various core elements and competency goals, either in the form of key questions or as professional loops. If teachers are a bit ahead of students in programming knowledge, then they have the opportunity to present real challenges. If they are behind their own pupils it will be difficult to give them challenges to learn from, or to experience in-depth learning. Within such a challenge, teachers can send students into a subject loop, where they have to work on the problem they have to 'solve', and then be drawn back into the Storyline.

Summary

Gjems refers to research where children learned by working with others and collaborating in writing texts, thereby expanding understanding and acquiring new knowledge (Gjems, 2009). According to Gjems, teachers should use interthinking, that is, questions during the process that help increase learning outcomes by requiring students to justify their answers and provide explanations. Students should be encouraged to think collaboratively. While keeping the educational goals in mind, discussing and evaluating which digital tools to use along with the students is, in itself, a collaborative learning activity. Students could then develop the ability to make independent choices about which digital tools they want to use. In class, it may be appropriate to let everyone try animation, making comics, VR or AR in order to learn when it might be best to use that tool. It will nevertheless be the teachers who control the processes in such a way that they can influence this choice. In other words, the teacher must be professionally, digitally competent. At the same time, we must address and decide why and how to use technology. According to Dons, we live in a time when technology is largely integrated into our lives, and both children and young people live with technology. He encourages professional judgment and practical wisdom in this digitalised era. But he also considers that there may not be enough understanding about how to integrate students' digital skills well enough into the school. Even Plato perceived writing as a threat to his oral dialogue. Th s suggests that though we may be welcoming of new technology, at the same time we must change our educational and digital practices. Dons points out that teachers must allow for analogue and digital experiences, and that through a video, blog or websites they can produce academic content (Dons, 2020). We can make this connection by having students create specific models in creative subjects such as arts and crafts. They can then use these analogue models of houses and fi tional people in their digital Storyline.

The digital opportunities teachers envisage must be available and clear learning goals must be set for and with the students. Th s is how digital tools, together with students' knowledge, motivation for learning and interaction can become a digital Storyline. Mitchell in Chapter 11also emphasises the importance of learner motivation, and how TSA has a positive impact on learners' motivation. If these factors are taken into consideration, we ensure that project-based learning can be used across multiple subjects and themes. Blikstad-Balas (2018)is a Norwegian school researcher who specifies what is most important for providing students with the best learning opportunities. She encourages teachers to engage students, use relevant digital resources, renew their own teaching, and try out new techniques continuously with students. According to her, a teacher is never fully trained (Bikstad-Balas, 2018).

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Chapter 19

Story-based Cross-Curricular Teaching and Learning
A Systematic Mapping of the Research Literature on The Scottish Storyline Approach

Kristine Høeg Karlsen and Virginia Lockhart-Pedersen

Abstract. In recent years, there has been an increased research interest in Storyline as an alternative and student-centred approach to teaching across the curriculum. The Storyline Approach is assumed to benefit students' learning outcomes and motivation in several ways. Nevertheless, there is a lack of critical and systematic reviews of the research on The Storyline Approach. Based on a systematic mapping of the research within this fi ld (Gough & Thomas, 2017), the purpose of the study is to survey and review the growing body of literature and to derive an evidence-based framework for the approach to direct future research efforts.

Introduction

Interest in researching The Storyline Approach (TSA[1]) as an alternative and student-centred approach to teaching and learning across the curriculum has increased internationally in recent years. The contributors researching TSA are affiliated at universities around the world, such as The University of Strathclyde in Scotland (McNaughton, 2014), Tomsk State University in Russia (Mitchell, 2016), Kristianstad University in Sweden (Ahlquist, 2019) and University of Minnesota (Emo & Emo, 2016). Research on TSA is conducted within a range of methods, such as Nuttall (2016) case study, Özsarı and Güleç (2018) experimental research, and Karlsen, Lockhart-Pedersen, and Bjørnstad (2019a), mixed method design. The subject in focus in the studies on TSA varies from mathematics (Fauskanger, 2002), foreign languages (Kocher, 2016), language arts (Smogorzewska, 2014) to history (McGuire, 1997). In other words, the studies on TSA span a range of different contexts and methods. However, there is a lack of a critical examination of the publications within this fi ld. In this chapter, we will present a systematic mapping of the primary research on TSA. Systematic mappings are one of the most powerful aspects of systematic reviews (Gough & Thomas, 2017). Th ough a systematic mapping of studies within a fi ld, it is possible, according to Gough and Thomas (2017), to "gain an understanding of the breadth, purpose, and extent of research activity in a given area" (p. 56). Reviews thus form the basis for undertaking new research. In this study we bring together and examine how and where the primary research on TSA has

1 TSA is an abbreviation created by Karlsen, Lockhart-Pedersen & Bjørnstad (2019a)

been carried out which can contribute to forming a basis of developing the research on TSA.

The purpose of the study is to examine the growing body of literature, to derive an evidence-based framework for researching TSA, and fi ally to direct future research efforts. The systematic mapping is driven forward by the following research questions: i) What is the current state of the research published on The Storyline Approach in the context of education, ii) To what extent does the research on The Storyline Approach constitute a fi ld of research? In the study, we rely on Ahlquist (2013), who defi es The Storyline Approach, as "a story-based framework in which different curriculum subjects could be included" (p. 41). In the following, we will provide an explanation of the terms *research* and *field of research*, before the methodology for conducting the systematic mapping is outlined.

Defining and Weighting Research

The OECD *Frascati Manual* (OECD, 2015) defi es research as comprising "creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge" (p. 44). Based on the Frascati Manual, an acknowledged worldwide standard for collecting, reporting and using research in addition to the *Norwegian Scientific Index* (NVI) in Cristin (Current Research Information System in Norway) which defi es the requirements for academic publishing in Norway (Cristin, 2019), we have derived four characteristics of research that inform our review process and analysis.

I. *Peer-reviewed*, the work has to be published in a medium with procedures for peer-review, cf. journal, proceeding, publisher, et cetera. (Cristin, 2019). Following the NVI-instruction, the "manuscript must be reviewed by at least one expert within the fi ld who is without ties to the publisher or the author" (Cristin, 2019).
II. *Transferability*, the results of the publication are presented in a form that makes the results verifiable and can be further used and reproduced by other researchers (OECD, 2015, p. 48; Cristin, 2019).
III. *Novelty*, the publication aims to present new fi dings based on the researcher's own work in order to improve the existing knowledge within a fi ld, and not to present already established knowledge (OECD, 2015, p. 46; Cristin, 2019).
IV. *Audience*, the publication is addressed to other *researchers* (and not practitioners, eg. school teachers), and thus the distribution and language used must make the research accessible for those (Cristin, 2015).

Research can be weighted in several ways. In this study the "Norwegian Model" (Sivertsen, 2016, p. 79) is used together with Davies et al. (2013) theory for evaluating the research evidence (p. 83). The Norwegian Model proposes a Scientific Index (NSD, 2019) which distinguishes and weights media (cf. journals, publishers, conferences, etc.) at two distinct publishing levels, 1 and 2, where level 2 publishing is considered to have the highest scientific value. The Index has been adopted at a national level in

several countries (Belgium, Denmark, Finland, Norway and Portugal) and is used by several Swedish universities on a more local level (Sivertsen, 2016, p. 79). The criteria proposed by Davies et al. (2013) for weighting research evidence defi e a range from *excellent* research to *inadequate*, based on an assessment of the quality and relevance of the methodology, and relevance of the topic. Using the Norwegian Index for publishing levels and Davies et al. (2013) criteria for weighting research evidence, three levels of quality in research were derived for this study. The fi st level captures *excellence* displayed in the research. Th s ranks level 2 publications (cf. NSD, 2019) and/or blind reviewed studies with an excellent research design, appropriate to the research questions which are stated clearly (cf. Davies et al., 2013, p. 83). The second level captures *good* research (cf. ibid., p. 83), which describes blind reviewed level 1 publications, and/or peer-reviewed studies with an explicit research design and research questions (includes studies where the research question "can be deduced from text", cf. ibid., p. 83). Finally, on the third level we fi d *inadequate* research, being peer-reviewed and/or non-peer-reviewed studies where descriptions of the research design are lacking or have major shortcomings, and where the research questions are lacking or inappropriate to the methodology (cf. ibid., p. 83).

In summary, the following four characteristics can be used to defi e research, it is peer-reviewed, the results are transferable, the work is novel, and it is addressed to peers and co-researchers interested in the research. Further, is it possible to measure the quality of the research on three distinct levels based on the Scientific Index and Davies et al. (2013) model, excellent research, good research, and inadequate research.

Defining a Field of Research

Defini g a *field of research* is not a straight forward process. The boundaries between scientific disciplines and specialties, i.e. what is science and what is not, must be seen in a historical context and viewed from a sociological perspective for the boundaries to be understood (Barnes, Bloor, & Henry, 1996, p. 140). In this manner, drawing boundaries for science is thus dependent on who is allowed to regard what is fact and who determines the acceptance of the results. Barnes et al. (1996) state that, "at any time there are various criteria which are generally regarded as legitimate bases for demarcating science…" (p. 42). Trustworthiness thus needs to be developed within the group studying the phenomena. The availability for meeting, discussing, and building relationships within the group allows for the growth of this trustworthiness. Based on some key contributors that have attempted to defi e "fi ld of research" (Bruyat & Julien, 2001; Grenfell & James, 2004; Kuhn, 1962; Ørbæk & Engelsrud, 2019) and Bourdieu's Field Theory (Bourdieu & Wacquant, 1992), we have derived four elements that can be used to defi e a fi ld of research and to create a framework that allows for discussion of fi lds.

I. Within the fi ld there must be *scientific publications*. For these publications, researchers in the fi ld need to take an active part in the discussion about where it is best to publish the research so that the results can be discussed both nationally and internationally (Ørbæk & Engelsrud, 2019). Grenfell and James (2004) extend their discussion of the fi ld of education to include the context in which the research projects have taken place, looking at the aims and outcomes of the research. In this study, we review the aims of the research published, which allows us to examine the extent to which the research challenges the set of thoughts or the literature in the fi ld, thus helping to defi e the fi ld of research.
II. The range of *methodological approaches* constitutes a fi ld of research. Grenfell and James (2004) use Bourdieu's Field Theory to look at the features of methods in the fi ld of educational research. In their article, they defi e educational research as a fi ld and argue that, "structural relationship between the range of methodological approaches constitute *a field*" (p. 3). Th s means that reviewing the methodological approaches used allows for identifying the fi ld itself.
III. Thi d, the amount of *external funding* can defi e the volume and size of a research fi ld. Unity within various individual governments (cf. The Norwegian Research Council and the German Research Foundation) and agreements between e.g. EU and individual governments comprise a large amount of external funding, where researchers are encouraged to apply (see, cf. HORIZON, 2020; NFR, 2020). To receive external research funding the project must have shown excellence (OECD, 2014).
IV. Within a fi ld, researchers must share a *common paradigm* according to Bruyat and Julien (2001), which means that there should be an agreement on what the fi ld is or is not. In this manner, the concept being researched must have an agreed-upon defin tion and an agreement on the themes within the concept. However, discussions within the fi ld must also allow for disagreements. Bourdieu's Field Theory allows for these discussions within a fi ld and yet emphasises the need for relative agreement to defi e the fi ld. A lack of a common paradigm hinders researchers from speaking to one another to further develop the fi ld (Greenfi ld, & Strickon, 1986). To this, Kuhn (1970) states that 'A research fi ld can only be built and win legitimacy if it is differentiated from neighbouring fi lds (p. 166). When exploring whether TSA constitutes a fi ld of research, investigating the differences between TSA and other neighbouring fi lds can be used.

A fi ld of research is therefore bound to the context in which it is found, and according to Bourdieu's Field Theory there are various agents vying for power, and these agents are pressed to follow the rules within a fi ld, otherwise a person may be restricted from taking part of that fi ld (Bourdieu & Wacquant, 1992, p. 102–104). In summary, a fi ld of research is dependent on the agreement among its members as to the phenomena within the fi ld. In addition, a fi ld of research is defi ed by the production of scientific publications. Further, the range of methodological approaches constitutes a fi ld, and fi ally the allocation of external funding can be used to evaluate the extent and size of

the research community within a particular fi ld and measure the quality of the conducted and planned research.

Methods and Analysis

To ensure that the mapping was systematic, the research conducted in this study involved four key activities for fi ding relevant TSA studies, following Gough et al. (2017); fi st, developing criteria for including studies; second, refini g the search strategy; third, screening the studies, and fourth, coding, describing and mapping the studies identifi d. Based on the volume and size of the pool of research on TSA, it is possible to strive for an exhaustive strategy, where an attempt is made to identify 'every relevant study' (Gough et al., 2012, p 108).

Developing Criteria for Including Studies

To fi d relevant studies for the literature review, we began by developing criteria for including the studies. The inclusion criteria aimed at defini g the standards (or characteristics) by which each study was judged whether or not to be included in the review (Brunton, Stansfi ld, Caird, & Thomas, 2017, p. 95). In line with G. Brunton et al. (2017, p. 95), each study had to meet *all* the criteria of inclusion to be included in the review. Aiming for an 'exhaustive' approach to searching (ibid., p. 97), we wanted to include *all* relevant studies published from when TSA was developed in 1967 at Jordanhill College of Education (Bell & Harkness, 2016, p. 16) until today. The fi st inclusion criteria were therefore to include previous research on TSA "published between 1967 and January 2019".

Second, we wanted to include studies focusing on the *Scottish* Storyline Approach (TSA), which meant excluding articles focusing on "Storyline" and role-playing as part of a game-based/narrative-based learning (see e.g. Aditya, Santoso, & Isal, 2019; Chen, Chen, & Dai, 2018; Kiili, 2005; Peeters, Van Den Bosch, Meyer, & Neerincx, 2014), excluding research that used the term "Storyline method" as a research instrument for conducting narrative analysis as part of the methodology (see Henze, van Driel, & Verloop, 2009), and excluding studies that used the term "Storyline approach" when capturing climate change (see Shepherd, 2019).

Thi d, the searches were limited to only include studies published in English or the Nordic languages. Limiting to only the English language can be a risky strategy according to G. Brunton et al. (2017) as, "it allows 'publication' and other types of bias to creep in, and can reduce external generalisability" (p. 99). Early on, the Scandinavian countries adopted TSA due to the creative educational philosophy found in Scandinavia (Bell & Harkness, 2016, p. 17). Consequently, Scandinavia has a long history of teachers and scholars interested in this particular approach. Therefore, we included the Nordic languages in our searches to broaden our search and as one way to accommodate the type of language bias under concern. Unfortunately, there are TSA articles published in German, Russian, and other languages that this review excluded (see Kocher, 1999, 2019; Schwänke, 2005) as the authors of this review do not understand these languages.

Fourth, when we started to plan the review, we wanted to include research studies on TSA only within *Teacher Education*. However, as the searches, including 'catch-up searches' (G. Brunton et al., 2017, p. 106), only identifi d 29 articles in total, we decided to expand the searches to include primary school and secondary school. Th s expansion, primary and secondary school, constitutes the fourth criteria. In addition, the fourth criteria of TSA in *education, primary, secondary, or higher education* excluded articles written about TSA in other disciplines, for example nursing (see Hofmann, 2007).

The fi h and fi al criteria of inclusion is "audience", ensuring that *only* articles written by and for other researcher were included in the mapping. Th s implies that the author must be/or have been affiliated at a place where research is carried out (e.g. university), that the publication has to contribute scientific knowledge (i.e. based on empirical or theoretical evidence) and that the publication relates own research to others research (i.e. through citing). Th s fi h criteria limited inclusion of several well-written master thesis (see e.g. Banas, 2018), and valuable booklets published by some of the key expert practitioners on TSA such as Omand (2014; 2017) and Creswell (1997).

It is important to note however, that in today's research society, there are new requirements for how research is or should be conducted (cf. Cristin, 2019; OECD, 2015) compared to accepted research requirements earlier. For this reason, we eventually decided to also include publications not published in a scholarly journal or other media with routines for peer review, if the publication otherwise contained the five criteria described above. Table 1 summaries the criteria of inclusion for this review: articles published between 1967 and 2019 focusing on the topic, The Scottish Storyline Approach; articles written in English or one of the Nordic languages; articles relating to primary and secondary school or teacher education; articles that reach out to other researchers (cf. audience).

Tab. 1: Criteria of inclusion

No.	Criterion Type	Characteristics
1	Recency	Published between 1967 and 2019
2	Topic	Focus on The Scottish Storyline Approach
3	Language	Written in English, Swedish, Norwegian, or Danish
4	Age-range	Relate to primary school, secondary school or teacher education
5	Audience	Give scientific nowledge, have reference list, research institution affiliation.

The Search Strategy

Time and effort were put into the planning and developing a detailed search strategy in line with G. Brunton et al. (2017, p. 104). We considered the aim of the searches, terms used in the search, relevant bibliographic databases and other sources for research, and then developed records documenting the search process. To ensure high quality during the searches, we invited a university librarian into the project to help systematically plan and carry out the searches.

Terms used in the searches

Having developed the criteria of inclusion, we had to decide upon which terms to be used in the search. To be able to identify relevant studies in the search results, one must, according to G. Brunton et al. (2017) "use a variety of search terms, which search both the controlled vocabulary and free-text fi lds" (p. 109). The language and terminology (e.g. synonyms and international spelling variations) were carefully considered and tested in searches before the electronic searches were conducted (in line with Brunton et al., 2017). According to the second criteria of inclusion (the topic), scholars use varied terms such as *Storyline* (Ahlquist, 2013; Bell, 2008; Eik, 1999), *The Storyline Method* (Emo & Emo, 2016; Mitchell, 2013), *The Scottish Storyline Method* (Creswell, 1997; Pareliussen & Braaten, 2013), *The Scottish Storyline Approach* (Karlsen et al., 2019a), *The Storyline Approach* (Ahlquist, 2015; Budlova, 2014; Nuttall, 2016; Omand, 2014), *Global Storyline* (Marova & Slepickova, 2014; McNaughton & Ellis, 2016) and *Storypath* (Fulwiler & McGuire, 1997; McGuire, 1997; Stevahn & McGuire, 2017). Based on the knowledge of this fi ld and searches in both the peer-reviewed journals and in the more practice-oriented literature, we eventually agreed on the following terms using the Boolean operator "OR" to combine the terms within each concepts, and "AND" to combine the different concepts: "Storyline" OR "Storypath" OR "The Scottish storyline approach" OR "Storyline method". Regarding publication language, we chose "English OR Norwegian OR Swedish OR Danish". Regarding the fourth criterion (age-rage), the following terms were used in the initial searches to fi d articles focusing on teacher education: "Teacher education" OR "Higher Education" OR "Vocational education" OR "Adult education" OR "Adult learners". When we decided broaden the scope to include primary and secondary education (class 1–13) we agreed on the following terms taking account for both the British and the American terms: "primary education" OR "primary school*" OR "elementary education" OR "Elementary school*" OR "Secondary school*" OR "High school" OR "college" OR "Education".

Sources of research data

Striving for a broad and exhaustive search strategy, we used varied types of sources to locate relevant studies. Table 2 gives an overview of the sources of research with hits (including the catch-up searches) and number of articles that meet *all* the criteria of inclusion, and thereby are included in the study. First, we used the following international bibliographic databases: EBSCHOhost (including Education Research Complete, Eric, EBook Collection, Academic Search Premier), Web of science and Scopus, and the Nordic and Norwegian databases: NORART and Idun. These searches started 14 December 2018 and were fin shed 7 June 2019, including catch-up searches 3 May 2019[2]. Second, we scanned the reference list in the articles already identifi d for potentially relevant studies, known as 'reference list checking' (G. Brunton et al., 2017, p. 114). Th s

2 The catch-up searches were done for the searches including "Teacher Education", before we decided to include primary and secondary education due to the limited amount of literature within the fi ld.

also included forward referencing undertaken in Google Scholar. Thi d, we contacted authors and key experts in the fi ld (by e-mailing) as a source for identifying more studies. Finally, we carried out internet searches using "Google scholar" and "Google" between the 27th of June to the 4th of July, 2019, scanning the 50 fi st number of records in each. All the searches were documented carefully (G. Brunton et al., 2017, p. 116). Records were kept of the searches using Word, Spreadsheets and EndNote, enabling "transparency and reproducibility in the review process" (G. Brunton et al., 2017, p. 117), and ensuring high quality of the search strategy (ibid.).

Tab. 2: Sources of research

Database sources	Total hits	Teacher education	Primary and Secondary	Duplicates	Records for full-text reading	Final research articles
EBSCOhost	653	196	457	8	645	22
Web of science	234	30	204	1	233	1
Scopus	286	48	238	12	274	0
NORART	36	18	18	0	36	8
Idun	100	39	61	1	99	1
Bibliotek.dk and Svensk ask.kb.se.	77		77	1	76	6
Other sources						
Scanning references	54		54	6	48	48
Google and Google scholar	113		113	52	61	14
Key experts	55		55	7	48	1
Hand search*	14		14	0	14	10
Total	**1622**	**331**	**1291**	**88**	**1534**	**111**

* Hand search for names of known authors not found by our other searches.

Screening Studies Identified

The screening of references retrieved from the searches was undertaken by two people (authors of the chapter) as advised by G. Brunton et al. (2017, p. 120). Th s means that every citation was double-checked using the pre-determined criteria, before being included in or excluded from the review. The screening followed a two-stage process: fi st screening individually and simultaneously based on abstract and (in most cases) full text of the retrieved study; secondly screening by meeting to compare the records of the individual screening. There was high inter-rater reliability between the two records, meaning that few disagreements were discussed when comparing the records. The occasions of disagreement were discovered when discussing topic of study (criteria 2) and audience of study (criteria 5). Th s implies that we had a common understanding of the inclusion criteria, which is important for the overall quality of the review process. A spreadsheet capturing date, title, authors of the text, name of the publication, the assessment from fi st authors' screening, the assessment from the second authors' screening, and a separate column documenting agree/disagreement. Having this system in place enabled us to report the number of records being included and excluded from the review (cf. G. Brunton et al., 2017, p. 120). Figure 1, a PRISMA diagram, depicts the fl w of information throughout the different stages of the review process undertaken (cf. Brunton, Graziosi, & Thomas, 2017, p. 147).

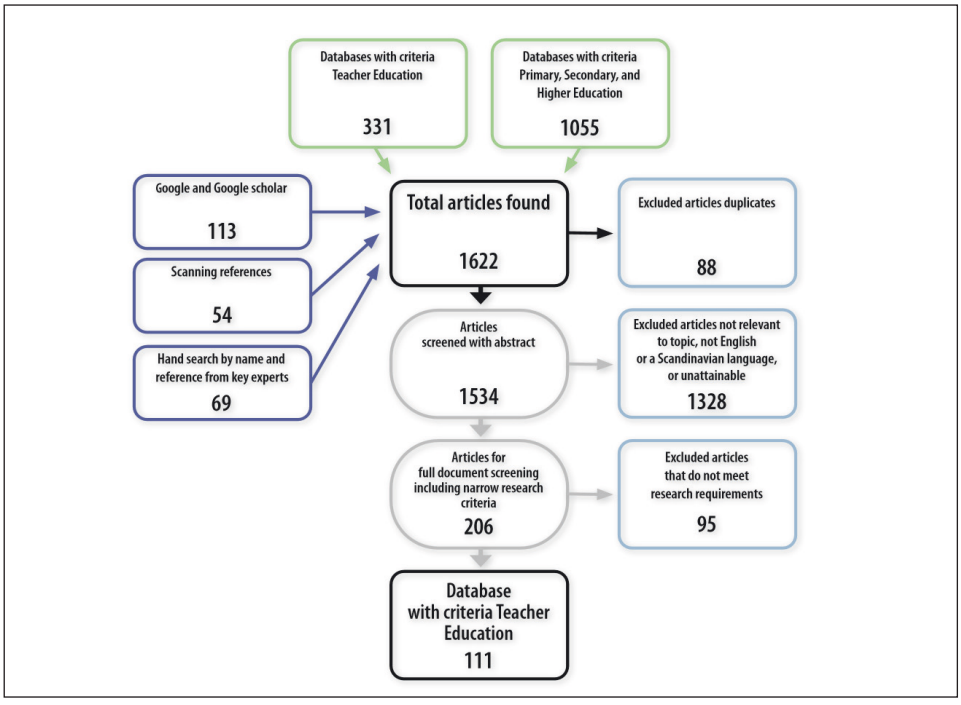

Fig. 1: PRISMA diagram: Showing the fl w of references throughout the review process.

Coding, Analysing and Mapping the Study Identified

To be able to answer research question(s), illustrating the current state of the research on Storyline, and considering whether Storyline makes a fi ld of research or not, a map is useful as it distinguishes "different perspectives or practices that have been studied" (Gough & Thomas, 2017, p. 57). The data consist of *texts* and was based on the empirical studies identifi d. The process of coding and analysing data went through three stages. At stage one, every study identifi d was hand-coded line-by-line with the current code, i.e. being date of publication, affiliation of the researcher, research design, discipline. The codes were, secondly, recorded in a spreadsheet. In cases of multiple codes, semicolons were used to allow for filtering (sorting) data. Table 3 provides an excerpt from the coded spreadsheet with codes for year, research design, data and analysis, in addition to the name of the researcher. In the third stage, the codes were sorted and counted. As most coding in this study was in the form of text, the codes had to be sorted fi st and then manually counted. The automatic count function found in Excel was only used when applied to number codes, such as the number of participants. The mapping in table 3 provides a detailed description of the research on TSA.

Tab. 3: Example of coding

Reseracher	Year	Research Design	Data	Analysis
Ahlquist	2019	Qualitative method	Field study; observation notes; feedback discussions; interviews	Content analysis
Pareliussen & Braaten	2013	Quantitative method; statistical method	pre/post-test with control group	multiple choice test
Mitchell-Barrett	2010	Mixed method	interview (semi-structured); survey	Intrinsic Motivation Inventory

Results of the study

In the following, we present the systematic map developed through the process of reviewing identifi d studies on TSA using the following themes: i) Distribution of the reviewed studies, ii) The reviewed studies' scientific quality and research design, and iii) Discipline and level of education, before the fi dings are discussed in accordance with the research questions.

Distribution of Studies

Geographic distribution

When we examine the distribution of the publications, we find that 100 out of the 111 publications within this field are either articles in a journal (44 out of 111publications) or a book chapter (56 out of 111).The remaining studies are conference proceedings (3), PhD theses (4), research reports (3) or books (1). When we rank the number of publications distributed by continent, we see that the contributors researching TSA come from a total of 15 countries across the three continents. Most publications are written by researchers at *European* universities and colleges (a total of 91 of the 111articles), while 14 articles are written by *American* researchers. Further, six of the publications are written by researchers from Asia (see figure 2). It must be added that Russia is classified as a transcontinental country because they have territory in both Europe and Asia. However, because the authors of the five Russian publications are affiliated to Tomsk State University and Yakutsk State University, respectively, which are universities that are found in the eastern part of the continent, these publications are classified as 'Asian'. When it comes to the last 3 publications, they are classified as European/Asian as all of them are written by researchers from Turkey (also a transcontinental country), and because one of them in particular is affiliated to Yıldız Technical University in İstanbul, which has both a European and an Asian part (see, overview in Figure 2, table to the right).

Europe	
Norway	35
Scotland	11
Denmark	10
Sweden	9
England	8
Germany	5
Iceland	4
Poland	4
Finland	2
Czech Republic	1
Belgium	1
Netherlands	1
America	
United states	14
Asia	
Russia	5
Indonesia	1
Europe/Asia	
Turkey	3

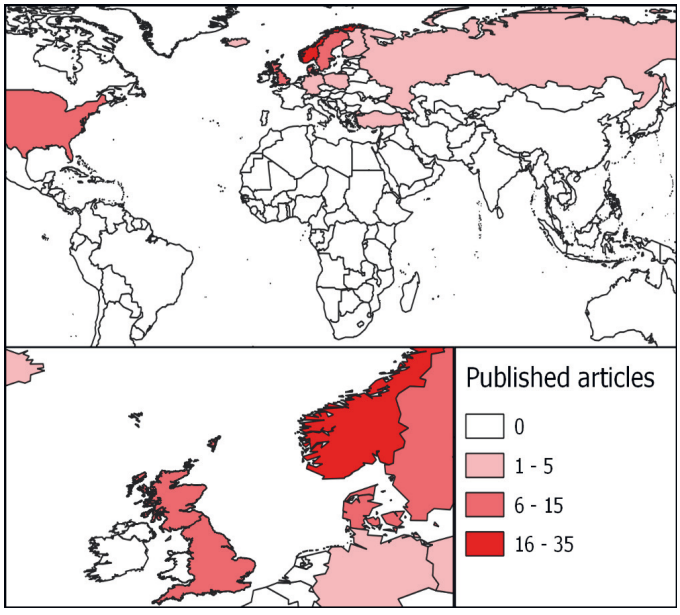

Fig. 2: Distribution of publication by country and continent. Note that three of the publications are written by authors from two different countries (Emo & Wells, 2014; Schwãnke & Plaskitt, 2016; Ulf; Schwänke & Gronostay, 2007), which explains why the summary table to the right totals 114 and not 111.

Ranking by country, Norway has contributed the largest number of research articles on Storyline. With a total of 35 publications from 1999–2019, Norwegian researchers have published almost three times as many articles on Storyline as researchers from the United States, which with their 14 publications in total (from 1997–2017) is the country that has contributed the second highest number of publications on Storyline just ahead of Scotland, with 11 articles in total. The other countries have published 10 or fewer articles.

Year of publication and gender distribution

In 1994, the first two research articles that meet the criteria of inclusion were published on TSA (cf. table 1). Excluding the three peaks shown in the data (see figure 3), the average number of research articles (including PhD theses) published annually is 3 for the period 1994 to 2019. The three peaks, 1999, 2007, and 2016 correspond with three major anthologies (Bell, Harkness, & White, 2007; Eik, 1999; Emo & Wells, 2014; Mitchell & McNaughton, 2016) which contributed a total of 39 articles.

As illustrated in the diagram (in figure 4), 66% of all publications are written exclusively by female researchers, a further 21% are written by mixed groups, and 11% of the publications are written exclusively by male researchers. The two researchers who have contributed with the highest number of publications are both female, Norwegian Liv Torunn Eik, with a total of eight publications between 1999–2003, and Swedish Sharon Ahlquist, with six publications between 2011–2019. Only two of the top eleven most published Storyline researchers are men, Steve Bell, with four research publications and Peter Mitchell, with 3 research publications. The data from this analysis, shows that researchers of TSA are predominantly female.

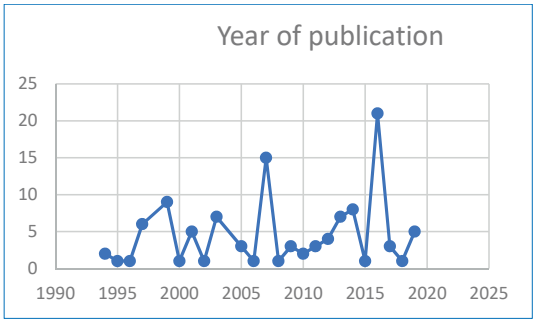

Fig. 3: Year of publication & gender distribution.

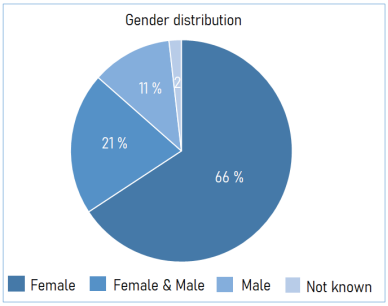

Fig. 4. Gender distribution.

Spread of publication

The researchers within this field use a variety of journals, publishers, conferences, etc., when publishing their work on TSA. In particular, the studies have been published in 34 different journals, 16 different anthologies, 3 different conferences, 3 different reports, and finally the four PhDs have been published at four different Universities.

As for the journal publications, only five of the journals have published more than two publications on this topic. The most used journal for TSA researchers is a USA-based journal, *Social Studies and the Young Learner,* with five publications on TSA, published by four different authors between 1997–2016 (see Fulwiler & McGuire, 1997; Liebert, 1999; Maxim & Maxim, 2014; McGuire, Walker, & Grant, 2016; McGuire & Cole, 2005). Two Norwegian journals contain three publications each on TSA, amounting to a total of six publications, all published between 2001–2002, see *Norsk Pedagogisk Tidsskrift* (Eik, 2001b; Fauskanger, 2002; Olsen, 2001a) and *Norsklæraren* (Eik, 2001a; Goga, 2001; Olsen, 2001b). Finally, two publications can be found in *Thinking Skills & Creativity* both written by Smogorzewska (2012,2014), and two publications written by Ahlquist (2013, 2019) have published in *English Language Teaching Journal* (ELT).

Almost half of all the publications on TSA are chapters in Storyline anthologies, whereas the two anthologies contributing most research articles come from presentations at the *International Storyline Conference*. The most recent project *Storyline: A creative approach to learning and teaching* (Mitchell & McNaughton, 2016), includes extended and reworked papers presented at the Conference in Reykjavik in 2012, written by various scholars from around the world. The anthology *Storyline: Past, present and future* (Bell et al., 2007) is a product from the Storyline Conference in Glasgow in 2006 and comprises a total of 13 research articles written by scholars from around the world. *Tverrfaglig tilnærming til aktiv læring*[3] (Eik, 1999) comprises seven research articles, while the three anthologies *Storyline for småskoletrinnet*[4] (Eik, Fagernæs, Fauskanger & Olsen, 2003), *Storyline for mellomtrinnet*[5] (Eik & Fauskanger, 2003), *Storyline for ungdomstrinnet*[6] (Olsen & Wølner, 2003), include 2 research articles.

Research funding

Four projects in total have received external funding. Czech Verna Brandford (2007) was funded for the project "Creative Dialogues" by European Comenius in 2003–2006. The aim of the project was to develop tools to implement Storyline as an alternative method in foreign language teaching in primary, lower and upper secondary education. In 2010–2013, the project "Global Storyline" was funded by the Department for International Development (DfID) in Scotland and involved collaboration between West of Scotland Development Education Centre, Glasgow Education Improvement Service and the University of Strathclyde (the Global Storyline Team). The project was initiated by Marie Jeanne McNaughton and aimed at developing a creative and dynamic pedagogy that engages pupils and teachers within primary education in critical thinking around global development and sustainable issues. The following three publications are related to this project (see McNaughton, 2012;McNaughton, 2014; McNaughton & Ellis, 2016). Building on the work of McNaughton, Marova and Slepickova (2014) received

3 Cross-curricular approach to active learning (authors' translation)
4 Storyline for level 1–4 (authors' translation)
5 Storyline for level 5–7 (authors' translation)
6 Storyline for lower secondary (authors' translation)

support from the Czech Ministry of Foreign Aff irs, for another *Global Storyline* project within primary education in the Czech Republic, "Expanding participatory teaching of global issues through the Global Storyline method" Th s was a collaboration between the Centre for Global Development, NaZemi, and the Institute for Research in Inclusive Education of the Faculty of Education at Masaryk University Brno. Recently, Polish Joanna Smogorzewska has completed a research project related to language learning and creative storytelling in pre-school, supported by The Polish National Centre for Science resulting in the following publications (see Smogorzewska, 2013; 2014; 2016).

The Reviewed Studies' Quality and Research Design

Peer review process

When analysing the reviewed studies in accordance with the *review process*, we distinguish between three main categories: blind peer-review, not blind peer-review and not peer-review (cf. Cristin, 2019). Of the 111 publications, less than half of the publications have undergone a blind review process (53 of the 111), where the reviewer has no connection to the author(s). The majority of the journal publications are blind peer reviewed (39 out of 44 publications). Of them, 26 are published in level 1 journals according to the NSD (2019) Scientific Index (see Brox, 2017; Budlova, 2014), while three of them are level 2 publications, ranked to have the highest scientific value (see Ahlquist, 2013, 2019; Karlsen et al., 2019a). Only 12 of the 56 book chapters have undergone a blind review process, whereas half of them (6 of 12) are level 1 publications (none at level 2). The four PhDs are all level 1 publication.

30 of the 111 publications have undergone a review process where the editor or peers have reviewed the manuscript as part of the writing process; two-thirds of these publications are chapters published in an anthology. Of the anthologies listed in *spread of publication*, only Eik's (1999) book[7] reaches the blind peer review process standard of today, where the reviewer has no ties to the author or editor (cf. Cristin, 2019).

To summarise, within the identifi d research on TSA, only three publications reach the highest scientific value (level 2), while there are 38 level 1 publications. 21% of 111 publications are published without any peer-review at all, while nearly 79%, 44 of the 56 book chapters, have not been part of a *blind* review process. Table 4 gives an overview of type of publication and review process.

Choice of methodology and transparency in the process of interpreting the data

An examination of the research methods used in the 111 publications shows that over half of them (64 out of 111) chose an analytical approach to studying TSA, while 47 chose an empirical approach. The analytical studies are published as chapters in books (41 of the 64) or as articles in journals (22 of 64), and one research report (see ta-

7 Th s knowledge comes from personal correspondence with all the editors the following dates, May 2019 (Mitchell and Harkness), 19th of December 2019 (with Fauskanger) and 21st of January 2020 (with Eik).

Tab. 4: Publication and review process

	Blind	Not blind		In total
	Peer-review	Peer-review	No peer-review	
Article published in a journal	39	5		44
Chapter in an anthology	12	20	24	56
Conference proceedings	2		1	3
PhD		4		4
Research report			4	4
Book		1		1
		30	29	
In total	**53**	**59**		**111**

ble 5). None of the analytical articles explains the methodology used, such as criteria for selecting literature, nor the methods used for analysing and interpreting the data (see table 5, fourth column). Of the 47 *empirical* studies, 32 are based on a qualitative research design, 8 use a quantitative approach, while 7 are based on a mixed method approach to data collection and analysis (see table 5). In total, approximately[8] 3078 participants were involved in the 111studies reviewed, of whom around 2176 are pupils in primary and secondary schools, 234 teachers (of whom 78 are placement teachers), 656 students in higher education (of whom 636 are student teachers) and 12teachers in higher education. Choice of methodology and strategies for analysis in the empirical studies are discussed below.

Tab. 5: Overview of the methodology

Research design	No. of studies	Type of publication				Shows transparency in the analysis of data
		Chapter	Journal	PhD	Others	
Analytical approach	64	41	22		1	0
Empirical approach	47					
Qualitative	32	13	14	2	3	5
Quantitative	8	1	6		1	8
Mixed method	7	1	2	2	2	5
						In total: 18

8 It is important to emphasise that this is approximate. Th ee of the empirical studies did not include information on the number of participants included in their studies (see, Mitchell, Mitchell, & Gural, 2016; Nuttall, 2016; Stanton & Tench, 2003), which contributes to uncertainty. Furthermore, four studies referred to whole classes instead of individuals (see Hofmann, 2007; Hovland & Storhaug, 2019; McNaughton, 2012; Pihlgren-Eveli, 2017; Syafri & Wulandari, 2012). In the counting of all the participants included in the 111studies, we have chosen to treat *one* class as 25pupils. Based on this, the number of participants adds to 3078.

The qualitative studies: Except for two PhD theses and two studies categorised as 'others' (table 5), book chapters (13 of 32) and articles (14 of 32) have almost equal representation in the qualitative studies. The largest proportion of the 32 qualitative studies are variants of ethnographic fi ld studies. No fewer than 17 articles combine qualitative data collection strategies such as observation, interview, logs, as well as documentation through recordings of sounds, images and film (see Ahlquist, 2011;McNaughton, 2014; Pihlgren-Eveli, 2017). Furthermore, 9 of the 32 qualitative studies use interviews, either as the only data collection strategy (see Budlova, 2014; Gürol & Kerimgil, 2012; Steingrímsdóttir, 2016), or in combination with logs (Brox, 2017; Mitchell et al., 2016; Rimmereide, Blair, & Hoem, 2011)or along with evaluations (Stanton & Tench, 2003). Of the six remaining articles in the group of qualitative empirical studies, two of them are based on different forms of written evaluations (Blair, 2016; Østern & Østern, 2016), while the last 4 constitute; an observational study (Hovland & Storhaug, 2019), a case study (Nuttall, 2016), a self-ethnographic study based on oral and written refl ctions (Häggström & Svensson, 2014) as well as a study of text developed by children (Smogorzewska, 2013).

Of the qualitative studies, only 5 of the 32 describe how the analysis of the data was carried out. Examples of analysis used are reception analysis of students' performances (Pihlgren-Eveli, 2017), content analysis (Ahlquist, 2019; Stevahn & McGuire, 2017), general qualitative data analysis (Gürol & Kerimgil, 2012)and discourse analysis (Smogorzewska, 2013). These five publications have shown that they meet academic quality criteria; the Pihlgren-Eveli (2017) publication is a doctoral dissertation which has to reach an academic standard suffici t of being defended for the PhD degree, while the four others are published in level 1 journal in accordance to the Scientific Index (NSD, 2019). It is interesting to note that none of the 13 qualitative studies published as book chapters explain methods used for data analysis.

The quantitative studies: Of the quantitative studies, the majority (6 of 8) are published as journal articles (table 5). Furthermore, 5 of 8 use variants of pre- and post-test research designs with control groups (see Pareliussen & Braaten, 2013; Tepetas & Haktanir, 2013; Özsarı & Güleç, 2018), while the last three publications use different data collection methods such as the diagnostic Oxford placement test (Mitchell, 2013), a survey (Solstad, 2006) and stories created by children (Smogorzewska, 2012). All the studies explain in which way data is analysed, for example with the use of *multiple-choice test* (Pareliussen & Braaten, 2013), the *Marmara elementary school preparedness scale* (Özsarı & Güleç, 2018)and the *Bracken Basic Concept Scale* (Tepetas & Haktanir, 2013).

Mixed method design: When it comes to the studies using a mixed method research design, they are published in various media: as journal articles (2 of 7), PhD theses (2) and as a chapter in a book (1), and other (2). 6 of the 7 studies combine semi-structured interviews with different types of surveys or evaluations (see Karlsen et al., 2019a; Lundström & Ljung, 2011;Mitchell-Barrett, 2010; Solstad, 2005), while the last study combines focus group interviews with varied sources such as questionnaires, a teacher's diary and student journals (see Mitchell, 2016). 5 of the 7 studies describe how the data is analysed. Solstad (2005) gives a brief description of having used frequency analysis, while the other four provide a more thorough explanation of data analysis,

being *Intrinsic Motivation Inventory* (Mitchell-Barrett, 2010), frequency analysis combined with qualitative interpretation of interview data (Karlsen et al., 2019a; Karlsen, Bjørnstad, & Lockhart-Pedersen, 2019b), and complex and mixed approaches for data analysis suited varied data collection strategies (Mitchell, 2016). Two of these four are PhD dissertations which have to reach a certain academic standard to complete a thesis defence for the PhD degree (Mitchell-Barrett, 2010; Mitchell, 2016), one is published in *Teaching and Teacher Education,* an international journal designated by the Norwegian Social Science Data Services (NSD) as a level 2 journal which has to reach the highest scientific quality criteria (Karlsen et al., 2019a), while the last one is a peer-reviewed chapter published in a level 1 publishing agency in accordance to the Scientific Index, NSD (Karlsen et al., 2019b).

In summary, of the 111 publications, 64 have chosen an analytical approach to exploring Storyline, while 47 are empirical studies. A large proportion of the analytical studies are presented as book chapters, the rest are journal articles. None of the analytical studies explain the methodology used, such as criteria for selecting literature, nor the methods used for analysing and interpreting the data. Of the 47 empirical studies, there is an almost equal split between book chapter and articles, where the largest proportion of the studies are using a qualitative approach to data collection and analysis most frequently use variants of ethnographic fi ld studies. 18 of the 47 empirical studies describe how the analysis of the data was carried out, with only two of them as chapters published in anthologies. Th s means that *only* 18 of the 111 studies describe the analysis strategy in such a way that it is possible to test the results of the study, the remaining 93 are lacking, partially or completely, details of the methods and/or the analysis. Except for the 18 studies mentioned, an overall weakness among a high proportion of the published studies in the fi ld (approximately 84%) can be found as little transparency is shown in terms of how the researchers analysed the data to arrive at their results.

Theoretical frameworks

Based on a review of the theoretical framework used in the 111 publications, we fi d that most publications, 47 out of 111, use descriptions of Storyline as the theoretical framework. Of the 47, 4 focus on Storypath (Fulwiler & McGuire, 1997; McGuire & Cole, 2005; Stevahn & McGuire, 2017), 1 uses a possible ICT section of a Storyline (Blair, 2016), and 1 uses a review of the literature on Storyline as a theoretical framework (Pihlgren-Eveli, 2017). Policy documents and curriculum descriptions are used as the theoretical framework in 12 of the 111 studies (see Fauskanger, 1999; Harkness, 2016; Lund, 1999). There are a number of articles, 26, that use different learning theories, principally of Dewey, Vygotsky and Piaget, as the theoretical framework, where 2 of these involve cooperative learning (Smogorzewska, 2013; Stevahn & McGuire, 2017). 13 studies use other theoretical frameworks such as theories on creativity (Smogorzewska, 2012, 2014); multimodality (Østern & Kalanje, 2014; T. P. Østern & Østern, 2016), and multiple intelligence (Baecke & Acker, 2016). The remaining 9 of the 111 studies do not have a theoretical framework. In summary, 61% of the publications do not use a specific

theory as a theoretical framework, choosing either documents, including descriptions of TSA or no theoretical framework at all.

Contribution of knowledge based on described aims and research questions

Regarding the knowledge contribution, we based the analysis on Anderson and Krathwohl's (2001) revised taxonomy of Bloom's (1956) educational goals within the Cognitive domain. Used for the purpose of distinguishing between publications aiming to promote retention and publications aiming to transfer (p. 63), five separate levels of knowledge are defi ed: remember (recall), understand, analyse, evaluate and create. The coding and analysis used in this study is based on the aims and/or research questions proposed in the identifi d studies. Not all the publications pose research questions. Of the 111publications, only 27 state both research question(s) and aim(s) of the study, 72 include aim(s) only and not research question(s), while 2 include research question(s) and not aim(s). Finally, 10 of them lack both a purpose statement and a research question. To summarise, 101 of the 111studies include either aims or research questions, or both and are used in the analysis of contribution of knowledge.

Of the 101 publications that explicitly formulate aims and/or research questions, 10 of them are coded as *retention*, which means that these studies do not aim at contributing new knowledge, but rather 'recall' the knowledge already available (cf. table 6). An example of one such study, might be one of Harkness' (2016) publications, that describes the aim of a chapter in the following way, "The chapter describes how I, Sallie Harkness of Storyline Scotland, in collaboration with staff [from …], developed three Storyline topics to progress a number of school projects" (p. 97).

The remaining studies are coded as *transfer* (numbering 91 out of 101), which means that these studies in some way or another, aim at building on the existing knowledge contributing to new understandings, analysis and evaluations. 7 of these are coded as 'understanding'. An example of such a study, aiming to construct meaning with the use of explanations is Wølner (2003), who states that, "The aim of this article is to explain the situation as it is and how ICT can be integrated as a tool in teaching in general and with the help of Storyline in particular" (p. 60, our translation).

80 of the remaining transfer studies are coded as 'analysis', that is, studies that seek to fi d out the connections between different parts and how they can be related. An example is Østern and Østern (2016) who state that, "Th oughout this chapter we have narrated the storyline of a developing storyline. We have analysed certain aspects and moments of the developing pedagogical design with especially designed tasks for the storyline…" (p. 134).

Finally, 4 studies aim to critically examine or 'evaluate' something, for example Budlova (2014) writes that "In this paper we examine the experimental learning with the Storyline methodology in the EFL context in students' linguistic group" (p. 420).

In summary, although most of the studies try in different ways to contribute new knowledge by constructing meaning, analysis and evaluation, no study attempts to create or build something new (cf. Anderson & Krathwohl, 2001, p. 84–88). For example, no study tries to create new models, theories or hypotheses which research fi lds need

in order to progress. It is also worth noting that only 29 of the 111 studies defi e research question(s), and a lack of formulated research questions can impair the transparency of the research.

Tab. 6: Coded dimensions based on aims and research questions

The Cognitive process dimensions	Number
Create	0
Evaluate	4
Analyse	80
Understand	7
Remember (recall)	10
Not explicitly formulated	10
Total	**111**

Discipline and Level of Education

One internationally-agreed-upon set of categories for academic disciplines is not available, as the defin tion of an academic discipline is subject to change (Abbott, 2001). Schools of thought within an academic discipline may change as research develops, creating new disciplines, or the boundaries between disciplines may become blurred or changed as the research within disciplines overlap, creating new combinations of disciplines (Serenko & Bontis, 2013). When analysing the identifi d studies within this review, we found studies that could be coded in two different discipline categories: 1) *Humanities* which include Languages and Linguistic and 2) *Applied Science* with subcategories of Environmental Studies and Education. Education is further coded as *education in general* and *school subjects* when one or more subject is mentioned in the study. When coding, the authors referred to the type of publication as an additional support for categorising the studies. For example, studies published in teaching or educational journals supported categorising them under *Applied Science* and *education in general*, while studies published in *Social Studies and the Young Learner* supported categorising them under the *school subject*.

Discipline and subjects

For this review, our search criteria were aimed at including studies focused on TSA in *education*. Therefore, only 8 studies are found in the discipline of Humanities, all of which are coded as language and linguistics (see Mitchell, 2016; Smogorzewska, 2013). The remaining studies (103 of 111) are coded as Applied Science. 7 of these studies are coded as Environmental Studies (see Lundström, & Ljung, 2009, 2010; McNaughton, 2012; Ritzler, & Jones, 2006). 96 studies are coded as Education, with 54 studies in *general education* and 42 studies as *school subjects*. In general education, 38 studies researched specifi ally TSA or implementation of TSA (see Olsen & Wølner, 2003; Schwänke & Plaskitt, 2016) while the remaining 14 studies were coded as educational psychology

focusing on theories of learning and TSA. The topics covered in theories of learning include for example, critical thinking skills (Frame, 2007; Hovland & Storhaug, 2019), active learning and learning autonomy (Hofmann, 2007; McNaughton, 2012,2014), and cooperative learning (Stevahn & McGuire, 2017).

In Applied Science, 42 studies are coded with school subjects, either alone or as part of a cross-curricular study. The subjects of foreign language and language arts are mentioned in half of the studies (21 studies) with foreign language mentioned in 15 of the studies (cf. Ahlquist, 2011,2013, 2015, 2016; Kocher, 2016; Syafri & Wulandari, 2012). When the studies (8) in Humanities are added to the category of school subjects, language arts and foreign language are mentioned in over 50% of the studies. Social studies, geography, and history are mentioned either alone or together with other subjects in 15 studies. The remaining subjects mentioned are maths (5), health science (2), ICT (4), performing/visual arts (2), physical education (1), and science (1).

In summary, we fi d most of the research on TSA in the academic discipline Applied Science and in the subcategory education. There is an even distribution of studies researching general education and TSA and researching TSA in the context of school subjects. If we consider environmental studies also a school subject, our results show that although school subjects form the basis of research for over half of the studies, the distribution of the school subjects being studied shows a need for increased studies in subjects other than languages. An overview of all the journals, anthologies, reports, conferences and PhD publications sorted on school subjects is outlined in Appendix A.

Level of education

To further map out the context of the knowledge contribution from TSA publications, we have coded the level of education that the study addresses. There is no international standard for age when entering public or private schools. For example, pupils enter public schools at age 5 in United Kingdom, while pupils enter public schools at age 7 in Finland. In addition, no international standard defi es the different levels of education. In the USA, for example, students may enter the university the year they turn 18, while in Norway, fi st-year university students may enter the year they turn 19. In this study, five levels of education have been defi ed using the following age ranges: i) Kindergarten, ages 1–4 ii) Primary school, ages 5–10 iii) Lower secondary, ages 11–15 iv) Upper secondary, ages 16–18, and v) Higher education, ages 19 and above. The ages of the participants were used to categorise the level of education in the empirical studies when the participants' ages were mentioned. In publications with no clear participants, the Storyline projects mentioned in the studies were used to help defi e the level of education, thus allowing for some studies to be coded with several levels of education or all levels of education. Finally, in some publications, the level of education was not mentioned and was not relevant to the research. These studies are coded as 'not relevant'.

The level of education is not mentioned or is not relevant in 8 of 111 publications (see Bell & Harkness 2016; Jónasson, 2016). The remaining publications mention the level of education in the studies either at one level of education or at combination of two or more levels. Figure 5 shows the results when publications are grouped by individual

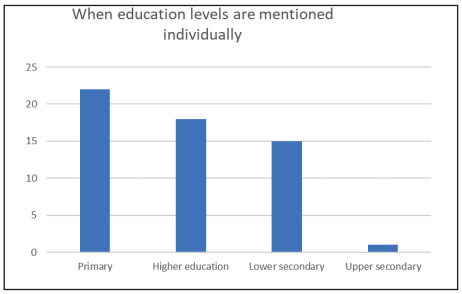

Fig. 5: Individual education levels.

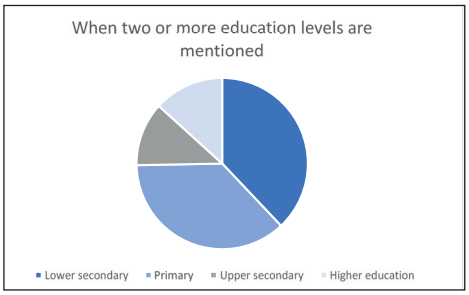

Fig. 6: Several education levels.

levels of education with primary education (22) constituting the largest group (see Hovland & Storhaug, 2019; Gürol & Kerimgil, 2012), followed by higher education (18) (see Karlsen et al., 2019a, b; Häggström & Svensson, 2014), lower secondary (15) (see Lundström & Ljung, 2010), and upper secondary (1) (Ahlquist, 2019). No publications mention researching at the kindergarten level of ages 1–4. However, figure 6 shows the results when we include publications that mention several levels of education in the study, with primary education mentioned in a total of 61 studies, lower secondary in 63 studies, upper secondary in 20 studies, and higher education in 22 studies. It is interesting to note the focus of these publications, as school subjects are focused on in 58% of the studies mentioning specifically either primary or lower education while in publications specifically mentioning either upper secondary or higher education, less than half of the studies, 42%, focus on school subjects. In summary, the results show that 75% of TSA research is on students, ages 5–15, and over half of these publications focus on school subjects. 25% of research on TSA has been published on students older than 16, with only 1 (Ahlquist, 2019) research focusing singularly on upper secondary school students.

Discussion

In the following, we will discuss the results of our study organised by the two research questions, i) What is the current state of research published on The Storyline Approach in the context of education, ii) To what extent does research on The Storyline Approach constitute a field of research. This discussion leads then to identifying what is needed to further develop TSA as a research-based, cross-curricular approach to teaching and learning.

The State of TSA Research in the Context of Education

When reviewing the publications identified, we find that most publications are written by researchers at European universities (91 of the 111 studies), with Norway contributing the highest number of publications followed by The United States and Scotland. This mirrors to some extent the inclusion criteria for this study which limited the searches to studies published in English or the Nordic Languages. However, we find it surprising

that the USA's contribution is only 14 research publications, as the USA is the world's third most populous country and English is the offi al language. No publications were identifi d in several other countries where English is an offi al language. For example, no publications were identifi d in Australia, New Zealand, and even India (which is the second largest populous country with English as one of its offi al languages). We believe that these publications would have been identifi d by our searches or confi med by the world-leading TSA key experts contacted during the search process, if the publications were available. We infer from our results that research from these other English-speaking countries simply does not exist. Why is TSA research so limited outside Europe and the USA? Based on reading the reviewed studies, we know that teachers across the world use TSA, e.g. Japan, Brazil, Thailand, Uganda (Ahlquist, 2013; Mitchell, 2013). So, the application of TSA is world-wide, even though the research is limited. Although the review shows that TSA is used in foreign language education around the world, the theoretical view of language learning or the scope of what must be learned in different countries according to national documents and curriculums may influence what research is done in the fi ld. In this manner, one can ask to what degree TSA's theoretical framework is culturally based and thus is supported by research in these few countries.

Regarding the TSA research found in Europe and USA, our results show that the *quantity* of research publications on TSA is also limited. Although TSA was created in the 1960s by the lecturers Rendell, Bell, and Harkness at Jordanhill College of Education, the fi st research article was not published until almost 20 years later in 1994 (see, Bell, 1994; Kristensen, 1994), confi ming that the focus for those working with TSA during the fi st two decades was on the development and implementation of TSA. The developers' aim was not research but rather facilitating the demand of the curriculum that required collaboration across school subjects (Bell & Harkness, 2016, p. 16). Yet, after the fi st research publication in 1994, the average number of journal research publications is only three publications per year. Th s number increases only slightly to 4.2 publication per year, when we include the three anthologies (Bell et al., 2007; Eik, 1999; Mitchell & McNaughton, 2016). Of these research publications, four Storyline projects between 2007–2014 have received small-scale national project funding by local universities and governmental grants. Although one project, Branford, has received international funding from European Comenius, no other Storyline research has received international funding for larger projects such as projects funded by Horizon 2020. Looking at the researchers themselves, a rather low number (around 11) of researchers have published more than one article on TSA and are continuing publishing research today. Finally, of the published researchers, on average, 9 of 10 publications are published by women or mixed groups of women and men. Apart from Bell and Mitchell, research publications on TSA are most frequently published by women. The low number of publications, the small diversity of researchers and the lack of international funding supporting TSA projects do not depict a strong body of research.

In summary, scientific publications in general on TSA are scarce, having not increased over the years. TSA research is geographically limited with little international funding, and the community of TSA researchers is rather small and overwhelmingly

female. A closer investigation is needed to understand why TSA research is limited to USA and Europe and why TSA research in general has not increased. As TSA is a cross-curricular approach to teaching and learning, the researchers' ownership of their subject discipline may play a role in the choice of research they choose to undertake. To what extent does this cross-discipline research approach reflect the high percentage of female researchers? The different status of individual school subjects, measured by results of national testing found in various countries may contribute to understanding why research on TSA is limited and why international funding may be problematic. In addition, an investigation into the differences and similarities found in the national curriculums facilitating cross-curriculum learning (cf. Scotland, Norway, and Finland) may also help us better interpret the results above.

To further investigate the state of research on TSA, we not only need to discuss by whom and where TSA is being researched, but also what is being researched and at what educational level. 103 of the 111 identified publications in this study are categorised in the discipline of Applied Science, which is expected, as our search criteria limited the results to publications on TSA in *education.* Interestingly, there is an even distribution of studies that research TSA in the context of education *in general* and TSA research in the context of a school subject. However, when we look closer at the content of study for education in general, there is an over-representation (70%) of research that investigates TSA specifically or implementation of TSA. With such a large proportion of publications focusing on TSA, researchers risk publishing articles that only lead to defining the concept, leaving little room for critical discussions or presenting new and original findings. On the other hand, we can also argue that this type of Storyline research is needed to help define the concept well enough to create a common paradigm for researchers. Greenfield and Strickon (1986) point out that well-defined common paradigms support researchers in a field. When looking at the other half of research done in the context of *school subjects*, the school subjects being researched are also not evenly distributed. Languages, either as the language of instruction or a foreign language, constitute 50% of the studies and social studies constitutes 30%. Other school subjects such as maths, environmental studies, and performing/visual arts are among the subjects being researched in the remaining 20%. Although TSA is described as a cross-curricular approach to teaching and learning, the distribution of school subjects being researched does not reflect the number of subjects taught at school. Finally, the results addressing the level of education being researched display a similar uneven distribution. Our results show that 75% of the studies focus on students from ages 5–15, while the remaining 25% focus on ages 16 and above. Only one study (Ahlquist, 2019) focuses solely on upper secondary students, which means that most of these remaining 25% investigate higher education or adult learners, and no studies at all were identified for children from ages 1–4. In this manner, the state of research in TSA has not yet developed enough to create a robust discussion between the researchers of education in general, school subject disciplines, or levels of education. In addition, to have a robust discussion among researchers, publications need to be available to those interested in the field. The most prevalent medium for TSA publications is anthologies, as 39 publications stem from the three above mentioned anthologies (form 1999, 2007 and 2016).

Outside of anthologies, publications on TSA are scattered in varied journals, reports and conferences. By publishing in a variety of media, the research on TSA may reach out to others outside of the fi ld. On the other hand, spreading the research over many journals may hinder the possibility of discussions between the researchers.

Finally, in addressing the state of research for TSA, it is important to look at the quality of the research published in these various media. Less than half of the publications (53 of the 111) have undergone a blind peer-review process before being published. Although almost all the journal publications were based on blind peer review (39 of the 44), only 12 out of 56 anthology publications are published after a blind peer review. Only three articles are published in a medium level 2, considered to be of the highest scientific value in accordance to the *Scientific Index* (NSD, 2019). Transparency of the methodology is described in only 18 of the 111 studies, all of which are empirical studies, with only two of these published as chapters in anthologies. None of the analytical studies, the publications that make up most of the studies distributed as anthology chapters, explain the methodology used to show how the analysis was carried out. Furthermore, only 29 of the 111 publications formulate research questions, with 20 of these being empirical studies. Finally, none of the 111 studies attempts to create, build and/or construct new models, theories, methods and hypothesis, which is the highest level of taxonomy proposed by Anderson and Krathwohl (2001). Our research results fi mly establish a need for more *blind* peer-review journal publications. Any new anthologies should also include a *blind* peer-review element in their criteria for publication. In addition, our results indicate that future Storyline studies must be presented in a manner that makes them verifiable, with the possibility for others to reproduce the research fi dings (cf. OECD, 2015, p. 48; Cristin, 2019). Th s is especially pertinent for new analytically oriented studies, that the methodology must be transparent, to strive for publishing studies that reach a higher level of research quality as described in Anderson and Krathwohl (2001). Otherwise, more empirical studies in general, with a quantitative or mixed method research design are needed. One way to address the issues of publishing high-quality Storyline research may be to establish a blind peer-reviewed level 1 journal (cf. Cristin, 2019) that aims to contribute solid knowledge on TSA and its neighbouring teaching and learning approaches, for example story-based, problem-based, or game-based learning.

In summary, to answer the fi st research question, *the current state of the research on TSA*, our results show that the small number of researches conducted on TSA are produced by researchers mainly within Europe and USA. Research on TSA is predominantly being done by female researchers who produce studies with a limited scope of research both in terms of the subject and the level of education being researched. The context of the studies reveals limited research on fundamental elements of TSA such as cooperative learning, even though group work is seen as an important part of TSA (Kocher, 2007; Tarrant, 2018). Based on this review, only two studies have cooperative learning within the school context as the main scope of research (Ahlquist, 2019; Stevahn & McGuire, 2017), revealing the need for further investigation of cooperative learning and group work as an integral part of TSA. The studies being published are to a large degree analytically oriented chapters in non-blind-reviewed anthologies that

do not require the highest quality level of research. Most of these publications have limited transparency in the methodology, making the results non-replicable and thus producing questionable results. In this manner, more studies are needed with the aim to create new methods, theories and/or hypotheses, as all the publications in this study can be found on the lower levels of Anderson and Krathwohl's (2001) taxonomy. Many of the publications warrant questioning as to what extend the research meets the criteria for novelty (cf. OECD, 2015, p. 46; Cristin, 2019). When using the Norwegian Index for publishing levels and Davies et al. (2013) criteria for weighting research evidence, we fi d that 58 studies fall in the category *inadequate*, as the research design is not fully explained or has major shortcomings such no research question(s) and/or lack of transparency of methodology. 50 of the studies can be assessed as *good* research, as they are either blind reviewed level 1 publications, and/or peer-reviewed studies that have shown explicit research design and research questions (cf. Davies, 2013; NSD, 2019). Finally, only three studies can be classifi d as *excellent* research, as they all are published in level 2 media (cf. NSD, 2019).

TSA as Constituting a Field of Research

The second research question to be discussed is to what extent does the research on The Storyline Approach constitute a fi ld of research. Previously, we presented four elements that can be used to defi e a fi ld of research: i.) scientific publications, ii.) a range of methodological approaches, iii.) external funding, iv.) a common paradigm. We will use these four elements when discussing the second research question.

Ørbæk and Engelsrud (2019) state that a fi ld of research must have scientific publications. The systematic mapping of this study clearly shows that publications on TSA can be found. However, as presented earlier, the number of publications is few, with a limited geographical distribution and limited scope of research topics. In addition, the results of the study reveal that little Storyline research can be classifi d as excellent or challenging the set of thoughts or literature in the fi ld. Therefore, although research on TSA is being produced, the depth and quality of the research needs to be further developed in order to support TSA as a fi ld of research. The second element that helps defi e a fi ld of research is a "structural relationship between the range of methodological approaches in the fi ld" (Grenfell & James, 2004, p. 3). Th s element seems also to be lacking in the results of our study. Because many of the publications on TSA do not adequately describe the methodology used, a review of the structural relationship between the methodologies is unavailable. Thus, the lack of explicit description of the methodology in these publications on TSA makes it difficult to identify any commonality. The third element, external funding, is limited to one study which was funded internationally. The modest internationally funded research indicates that more large-scale international research projects are needed in order to develop TSA as a fi ld of research. The fourth and fi al element that can be used to defi e a fi ld of research is a common paradigm. In many ways, this element is the strongest element in defini g TSA as a fi ld of research. Because many of the publications in this study are analytical, focusing on the phenomena of TSA, there is a growing agreement as to what TSA is and

how it can be defi ed. Although TSA has several names, publications on TSA appear to have a common understanding of the defini g elements of The Storyline Approach, for example, a venue or setting, characters either real or fantasy, a storyline plot, key questions, and a type of closing celebration. These elements may have different names depending on the researcher, but the characteristics of the elements are similar. However, the results of this study also reveal few studies that challenge the concept being researched and only two studies compare TSA with other related methods, indicating that although there may be a common paradigm, what is agreed upon as TSA may be too vague or broad to render challenging academic discussions.

In summary, this study supports the conclusion that the publications on TSA do not create a framework for TSA to be considered a separate fi ld of research, but rather these publications contribute to research on the variety of methods teachers can use to organise cross-curricular teaching, research including the *power of stories* structuring the students learning process often found in for instance game-based or scenario-based learning (cf., Aditya et al., 2019; Kiili, 2005).

Research Needed to Further Develop TSA

For TSA to further develop into a research-based method, promoting cross-curricular and story-based teaching and learning, more research is needed, and explicitly, more *excellent* research that meets the highest standards and requirements for academic publishing (cf. OECD, 2015). Our study has revealed the need for more research specifi ally at the upper secondary and university levels. The need for more research in several areas of investigation has been also revealed through this review. For example, the review of the context of the studies exposes a need for further investigation of TSA and cooperative learning, as group work is an important factor in Storyline (Kocher, 2007; Tarrant, 2018). Based on this review, only two studies have cooperative learning as the main scope of research (Ahlquist, 2019; Stevahn & McGuire, 2017) and one focus on collaboration (Smogorzewska, 2012). Although mathematics has been investigated in five publications (see Eik et al., 2003, Fauskanger, 1999), there is a need for studies examining explorative aspects of mathematics and how student teachers, for example, can develop mathematical pedagogical content knowledge with the use of TSA, investigations not found in any of the publications in this review. Using the aesthetic framework that is found in TSA, more research is needed to explore how student teachers can develop aesthetic competencies through TSA. Research that investigates the possibilities of ICT and TSA in teacher education can help develop the approach, and ground the approach in line with the demands of the 21st century. Finally, scientific publications with the aim of generating new knowledge and understanding, and in the end new theory in line with Gough and Thomas (2017, p. 63) are strongly needed, for example, a further investigation of the systematic mapping of this research to carry out a synthesis that configu es or pieces together research knowledge from fi dings in the individual research studies.

Conclusion

This study is a systematic mapping of the body of literature researching The Storyline Approach (TSA), a cross-curricular teaching and learning method. The study was undertaken to investigate the current state research published on TSA and to investigate to what extent research on TSA constitutes its own field of research, thus deriving an evidence-based framework for future research on TSA. In this study, the authors created inclusion criteria to strive for an exhaustive search of literature on TSA. Of the 1622 articles that were originally identified in the search process, a final 11 studies were identified as meeting the criteria developed for limiting the publications to research articles on TSA in education. The results from our investigation, reveal that the current state of research on TSA is at an elementary stage, with a limited body of research stemming mainly from Europe and USA. Few studies on TSA meet the current standards for high-quality research. The limited publications, their limited geographical scope, and the limited international research funding indicates that TSA does not qualify as specific field of research but rather adds to the body of research supporting cross-curricular teaching and learning. The results of this study provide for a framework that researchers can use to further develop TSA as a research-based, cross-curricular approach to teaching and learning. More high-quality research on TSA is needed, for example in school subjects such as Maths, Art, and ICT, along with studies that investigate the use of cooperative learning in TSA. The results of this study also suggest a need for further research on TSA focusing on upper secondary schools and higher education.

Acknowledgement

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Appendix a: Storylines organised by school subject

Cross-curricular	
Primary School and/or Lower Secondary School	Eik, L. T., Fauskanger, J., & Olsen, K.-R. (2003). Storyline og utvikling av sosial kompetanse. In L. T. Eik, M. Fagernæs, J. Fauskanger, & K.-T. Olsen (Eds.), *Storyline for småskoletrinnet* (pp. 49–71). Oslo: Universitetsforlaget. Brownlow, L. (2007). Enterprise Education and storyline: different approaches – the same aims? In S. Bell, S. Harkness, & G. White (Eds.), *Storyline past, present and future* (pp. 33–43). Glasgow, UK University of Strathclyde. Eik, L. T. (1999). Storyline: tverrfaglig undervisning med utgangspunkt i fiksjon. *Drama*, (4), 8–12. Håkonsson, E. (1997). Fantasi og sprog i storyline-metoden. In C. Falkenberg, E. Håkonsson, N. Jægerum, S. Madsbjerg, & F. W. Mosegaard (Eds.), *Storyline-metoden. "Den skotske metode" – undervisningk på fantasiens vinger* (pp. 125–135). Vejle: Kroghs forlag. McGuire, M. E., & Cole, B. (2005). Using Storypath to Give Young Learners a Fair Start. *Social Studies and the Young Learner, 18*(2), 20–23. Pareliussen, I., & Braaten, B. E. P. (2013). Firmaments of imagination-using the Scottish storyline method in early childhood education and care teacher training. *FoU i praksis*, 198–205. Østern, T. P., & Østern, A.-L. (2016). Storyline as a key to meaningful learning: Arts and science combined in Space me. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 116–135). Cambridge Scholars Publishing: Newcastle upon Tyne.
Higher Education and/or Teacher Education	Danielsen, S. (2005). *Utprøving av Storyline som metode i førskolelærerundervisningen – og teoretiske refleksjoner omkring metoden brukt i barnehagen*. Finnmark: Høgskolen i Finnmark. Pareliussen, I., & Braaten, B. E. P. (2013). Firmaments of imagination-using the Scottish storyline method in early childhood education and care teacher training. *FoU i praksis*, 198–205. Østern, T. P., & Østern, A.-L. (2016). Storyline as a key to meaningful learning: Arts and science combined in Space me. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 116–135). Newcastle upon Tyne: Cambridge Scholars Publishing.

Environmental studies	
Primary School and/ or Lower Secondary School	Lundström, C., & Ljung, M. (2009). *En storyline om hållbar utveckling med lantbruk som utgångspunkt. Lärares och elevers upplevelser*. Skara: SLU. https://core.ac.uk/download/pdf/11696473.pdf Lundström, C., & Ljung, M. (2010). A storyline with farming as the basis for learning about sustainable development – experiences gained from a pilot-project. In J. Schockemöhle (Ed.), *Wissenschaftliche Fundierung des Lernens auf dem Bauernhof. Tagungsband zur 1. Fachtagung der Wissenschaftsinitiative zum Lernort Bauernhof 2010, 10.–12. Juni in Altenkirchen (Ww.)* (pp. 89–97). Vechta: Kompetenzzentrum Regionales Lernen. Marova, I., & Slepickova, L. (2014). *Development of participatory teaching in Czech schools: Global Storylines method in practice.* Paper presented at the EAPRIL Conference Proceedings. McNaughton, M. J. (2012). We know how they feel: Global storylines as transformative, pedagogical learning. In A. E. J. Wals & P. B. Corcoran (Eds.), *Learning for sustainability in times of accelerating change* (pp. 457–476). Rotterdam, Netherlands: Wageninger Academic Publishers. McNaughton, M. J. (2014). From acting to action: Developing global citizenship through global storylines drama. *The Journal of Environmental Education, 45*(1), 16–36. McNaughton, M. J., & Ellis, D. (2016). Global Storyolines: The World in the classroom, the classroom in the world. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 77–96). Newcastle upon Tyne: Cambridge Scholars Publishing. Ritzler, C., & Jones, C. (2007). Rainforest adventure: a workshop for teachers. In S. Bell, S. Harkness, & G. White (Eds.), *Storyline past, present and future* (pp. 231–239). Glasgow, UK: University of Strathclyde.
Upper Secondary School	McNaughton, M. J. (2012). We know how they feel: Global storylines as transformative, pedagogical learning. In A. E. J. Wals & P. B. Corcoran (Eds.), *Learning for sustainability in times of accelerating change* (pp. 457–476). Rotterdam, Netherlands: Wageninger Academic Publishers. Marova, I., & Slepickova, L. (2014). *Development of participatory teaching in Czech schools: Global Storylines method in practice.* Paper presented at the EAPRIL Conference Proceedings.

Foreign Languages	
Primary school and/or Lower Secondary School	Ahlquist, S. (2011). *The impact of the Storyline approach on the young language learner classroom: a case study in Sweden.* (PhD thesis), University of Leicester. Ahlquist, S. (2013a). *Storyline: developing communicative competence in English*. Lund: Studentlitteratur. Ahlquist, S. (2013b). 'Storyline': a task-based approach for the young learner classroom. *ELT journal, 67*(1), 41–51. Ahlquist, S. (2016). Developing writing skills in the young language learner. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 193–202). Newcastle upon Tyne: Cambridge Scholars Publishing. Ahlquist, S. (2015). The Storyline approach: promoting learning through cooperation in the second language classroom. *Education 3–13, 43*(1), 40–54. doi:10.1080/03004279.2015.961692 Brandford, V. (2007). Creative Dialogues. *International Journal of Learning, 13*(10), 169–174. Brandford, V. (2019). The Storyline Approach and the literature. In F. Diamantidaki (Ed.), *Teaching Literature in Modern Foreign Languages* (pp. 63–77): Bloomsbury Academy Publishing. Kocher, D. (2007). Why Storyline is a Powerful Tool in the Foreign Language Classroom. In S. Bell, S. Harkness, & G. White (Eds.), *Storyline past, present and future.* (pp. 118–125). Glasgow, UK University of Strathclyde. Kocher, D. (2016). Storyline as an approach to task-based language teaching. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 166–178). Newcastle upon Tyne: Cambridge Scholars Publishing. Lund, R. (1999). Storyline og fremmedspråk. In L. T. Eik (Ed.), *Storyline. Tverrfaglig tilnærming til aktiv læring* (pp. 195–212). Oslo: Tano Aschehoug. Syafri, F., & Wulandari, R. S. (2012). *Storyline approach as enhancement of learning foreign language and character building at elementary school*. Paper presented at the UNNES International Conference on ELTLT (English Language Teaching, Literature, and Translation).

Upper Secondary School	Ahlquist, S. (2019). Motivating teens to speak English through group work in Storyline. *ELT journal, 73*(4), 387–395.
	Brandford, V. (2007). Creative Dialogues. *International Journal of Learning, 13*(10).
	Brandford, V. (2019). The Storyline Approach and the literature. In F. Diamantidaki (Ed.), *Teaching Literature in Modern Foreign Languages* (pp. 63–77). London: Bloomsbury Academy Publishing.
	Kocher, D. (2016). Storyline as an approach to task-based language teaching. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 166–178). Newcastle upon Tyne: Cambridge Scholars Publishing.
	Lund, R. (1999). Storyline og fremmedspråk. In L. T. Eik (Ed.), *Storyline. Tverrfaglig tilnærming til aktiv læring* (pp. 195–212). Oslo: Tano Aschehoug.
Higher Education / Teacher Education	Brox, H. (2017). What's in a wiki? *Nordic Journal of Digital Literacy, 12*(04), 129–142.
	Blair, B. (2016). Stoyrline and ICT in second language learnin. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 203–217). Newcastle upon Tyne: Cambridge Scholars Publishing.
	Budlova, T. Y. (2014). The Storyline approach in teaching Business English to linguistic students. *Procedia-Social and Behavioral Sciences, 154*, 420–424.
	Mitchell, P. J., Mitchell, L. A., & Gural, S. K. (2016). Storyline and learner motivation in the university foreign language classroom. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 179–186). Newcastle upon Tyne: Cambridge Scholars Publishing.
	Mitchell, P. J. (2013). The Storyline method in foreign language teaching: the history and main principles. *Language and Culture, 2*(22).
	Rimmereide, H. E., Blair, B., & Hoem, J. (2011).*Wiki Storyline in second language teaching.* Paper presented at the Seminar. net.
	Zamorshchikova, L., Egorova, O., & Popova, M. (2011).Internet technology-based projects in learning and teaching English as a foreign language at Yakutsk State University. *The International Review of Research in Open and Distributed Learning, 12*(4), 72–76.
Geography	
Lower- and Upper Secondary School	Liebert, D. K. (1999). Millennium Island: Creating a Storyline about Geography and Time. *Social Studies and the Young Learner, 12*(2), 6–7.
	Sætre, P. J. (2003). Storyline-metoden, geografi og klassekameratene til'Lille Marius'. *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography, 57*(1), 58–59.

Health Sciences	
Primary School	Óskarsdóttir, G. (2007). How Storyline can make a contribution to effective teaching about the human body in early primary education. In S. Bell, S. Harkness, & G. White (Eds.), *Storyline past, present and future*. (pp. 211–217). Glasgow, UK: University of Strathclyde.
Lower Secondary School & Adults	Stanton, G., & Tench, P. (2003). Intergenerational storyline bringing the generations together in North Tyneside. *Journal of Intergenerational Relationships, 1*(1), 71–80.
History	
Primary School and/or Secondary School	Eik, L. T. (2003). Når fiksjonen møter fakta. In J. Fauskanger & L. T. Eik (Eds.), *Storyline for mellomtrinnet* (pp. 61–83). Oslo Universitetsforlaget. Fulwiler, B. R., & McGuire, M. E. (1997). Storypath: Powerful Social Studies Instruction in the Primary Grades. *Social Studies and the Young Learner, 9*(3), 4–7. Maxim, J., & Maxim, G. (2014). Teaching about Valley Forge: Using Standards for Action and Achievement. *Social Studies and the Young Learner, 27*(1), 25–29. McGuire, M. (1996). Teacher Education: Some Current Challenges. *Social Education, 60*(2), 89–94. McGuire, M. (1997). Taking a Storypath into History. *Educational Leadership, 54*(6), 70–72. Nielsen, V. O. (2006). Den historiske fortælling og storylinemetoden. *Narratio: årbog for Foreningen af Historielærere ved Seminarierne*, 69–75.
Upper Secondary School	Maxim, J., & Maxim, G. (2014). Teaching about Valley Forge: Using Standards for Action and Achievement. *Social Studies and the Young Learner, 27*(1), 25–29.
Language Arts	
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Language Linguistics	
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Mathematics	
Primay School and/or Lower Secondary School	Fauskanger, J. (1999). Matematiske muligheter i storyline-metoden. In L. T. Eik (Ed.), *Storyline. Tverrfaglig tilnærming til aktiv læring* (pp. 147–170). Oslo: Tano Aschehoug. Fauskanger, J. (2002). Storyline: med matematikk innenfor eller utenfor? *Norsk pedagogisk tidsskrift, 4*(308–321). Fauskanger, J. (2003). Storylinekonteksten utfodrer elevenes matematikk. In J. Fauskanger & L. T. Eik (Eds.), *Storyline for mellomtrinnet* (pp. 13–33). Oslo: Universitetsforlaget.
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Higher Education and/or Teacher education	Blair, B. (2016).Storyline and ICT in second language learnin. In P. J. Mitchell & M. J. McNaugthon (Eds.), *Storyline: A Creative Approach to Learning and Teaching* (pp. 203–217). Newcastle upon Tyne: Cambridge Scholars Publishing. Brox, H. (2017). What's in a wiki? *Nordic Journal of Digital Literacy, 12*(04), 129–142. Rimmereide, H. E., Blair, B., & Hoem, J. (2011).*Wiki Storyline in second language teaching.* Paper presented at the Seminar. net. Zamorshchikova, L., Egorova, O., & Popova, M. (2011).Internet technology-based projects in learning and teaching English as a foreign language at Yakutsk State University. *The International Review of Research in Open and Distributed Learning, 12*(4), 72–76.

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Authors of the Anthology

Editors

Kristine Høeg Karlsen holds a PhD in educational science from the Department of Education at the University of Oslo in Norway, and is currently an associate professor at the Faculty of Education at Østfold University College (OUC). She leads the research group at this faculty, *Breaking boundaries: Creativity, art and innovation in Education, Practice and Research*. She is also project manager for the research project *pARTiciPED. Empowering student teachers for cross-sectorial collaborations with The Cultural Schoolbag (TCS) in Norwegian Schools* funded by the Research Council Norway, which aim to develop concepts, principles and theory to explain how cross-sectoral collaborations can be organised and implemented to secure transformative mutuality. Karlsen helped establish the *Nordic Journal of Dance: practice, education and research* in 2010, and was the journals first editor. Her research interests are cross-disciplinarily teaching, student active learning approaches, assessment and feedback, as well as aesthetic approaches to learning and dance pedagogy. She has been awarded three scholarships by Østfold University College (2016, 2017 and 2019). Since 2017 she has been a Faculty board member at the Faculty of Education at OUC and is an International Advisory Board member of the peer-reviewed open access publication *Dance Articulated*. She is also educated as a school teacher at what is now the Department of Primary and Secondary Teacher Education at Oslo Metropolitan University, with specialisation in Arts & Crafts at the Faculty of Technology, Art and Design. Photo credits: ØUC.

Margareth a Häggström holds a PhD in Educational Practice at the University of Gothenburg in Sweden, and is a Senior Lecturer at the Faculty of Education, with an orientation towards multimodal and aesthetic perspectives. Her research has been funded by the Swedish Research Council. She has a background as a high school teacher, teaching visual art and Swedish. She is involved in the Teacher Education Programs at the University, and currently involved in research on Storyline in preschool. Her special field concerns aesthetics as didactical tools, participation and communication, and inclusive pedagogical methods, as well as multimodality in higher education. Her research interests concern aesthetic experiences, outdoor pedagogy and transformative learning. Photo credits: Malena Wallin.

Co-Authors

Sharon Ahlquist, Doctor of Education, teaches on the programmes for primary and secondary teacher education at Kristianstad University, Sweden. She is an active researcher and besides The Storyline Approach, her research interests include using children's fiction in second language teaching, and the influence of social and emotional features in the second language classroom. She is the author of *Storyline – developing communicative competence in English*, and "*English is fun!*" – *Challenges and opportunities for English in years 4–6*, both published by Studentlitteratur, Sweden. Photo credits: Christian Ahlquist

Stein Arnold Berggren, Master of Science in Applied Mathematics and Degree of Licentiate in Engineering, subject area mathematics. Practical Pedagogical Education (PPU). He has substantial high school experience. Stein has been an Assistant Professor at the Section for Mathematics at Faculty of Education at Østfold University College in Norway since 2013 and teaches mathematics in the Primary and Lower Secondary Teacher Education Programme. His research interests are interdisciplinary and early learning. Photo credits: Marianne Andreassen

Gunhild Brænne Bjørnstad is an Associate Professor of Drama/Theatre at the Department of Teacher Education in Østfold University College. She is concerned about the position of the aesthetic subjects in education and is hence interested in how aesthetic learning processes add new perspectives and deeper understanding for a topic, as well as for the aesthetic subjects. Bjørnstad is involved in several interdisciplinary projects, and coordinates hubs where student teachers interface with other groups through drama and theatre processes. Her interests in multiculturality and diversity are evident in her work as international coordinator of the department. Photo credits: Marianne Andreassen.

Kath ar ina Dahlb äck is a Senior Lecturer at the University of Gothenburg, Department of Pedagogical, Curricular and Professional Studies in Sweden. In the teacher education she works among other things with The Storyline Approach in teacher education. In 2017, she defended her dissertation "Aesthetic dimensions in the subject Swedish – in classroom, curricula and teachers' perceptions". Her research interests focus on the importance of aesthetic expressions for communication, learning and language development and how these expressions can be used as didactic tools in teacher education and school. She has a special interest in poetry as a way to work with literacy, multimodality and multilingualism. Photo credits: Johan Dahlbäck

Linus Djurs ted t holds a Bachelor's degree in Educational Practice at the University of Gothenburg. He is currently working as a 3rd grade teacher in Kungsbacka, Sweden. He has a background in the fi ld of media and communication but decided to change his career path towards teaching. His main interest concerns sustainability, gender issues and fi ding ways to make people understand each other better. In the future he wishes to improve the Swedish school system, making it more inclusive. Photo: Linus Djurstedt.

Siv Eie is a human geographer and works as an Assistant Professor in social studies at OsloMet – Oslo Metropolitan University, Department of Primary and Secondary Teacher Education, Norway. Her research fi ld is within geography didactics, education for sustainable development and integration of generic skills and content specific knowledge through Storyline and digital learning environments, such as Minecraft. She also writes textbooks in social studies for young learners in grade 1–4. Photo credits: Jon Amundsen

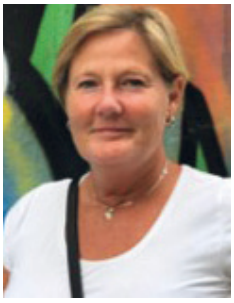
Renae Ekstrand was a special education teacher before teaching at South Dakota State University (USA) and serving as chair for the Department of Education at Dickinson State University in North Dakota, USA. She is currently the student success coordinator of the Hazelden Betty Ford Graduate School of Addiction Studies in Minnesota, USA. Photo credits: Hazelden Betty Ford Graduate School of Addiction Studies

Diana Ellis holds a post-graduate diploma in Primary Teacher Education from the University of Ulster. She is now a teacher trainer and Global Education Advisor at the West of Scotland Development Education Centre in Scotland. As a primary teacher, Diana used Storyline with her classes, but after she took up a post training teachers in Global Citizenship Education she saw the wider opportunities that the original Storyline methodology offers. In 2010 Diana worked closely with Dr Marie Jeanne McNaughton, a drama and Storyline specialist from the Teacher Education department at the University of Strathclyde Teacher Education. Global Storylines were born! Photo credits: Aly Wight.

Wendy Emo discovered Storyline while teaching kindergarten and has used it in her elementary and university classrooms. She earned her Ph.D. at the University of York, England. While teaching literacy classes in teacher education at Minnesota State University, Mankato (USA), and the University of Minnesota, Morris (USA), she incorporated Storyline whenever possible. She currently teaches third grade in Washington state and enjoys handspinning and walking on the beach with Ken. Photo credits: Ken Emo.

Ken Emo earned his Ph.D. at the University of Colorado, Boulder, USA. He taught Educational Psychology as an associate professor at South Dakota State University and later at the University of Minnesota, Morris, USA. While teaching elementary and secondary science in mainstream, alternative, and youth detention schools, he specialised in engaging his students through hands-on investigations on water, in greenhouses, and with spawning salmon. He plays classical and electric guitar when he is not walking on the beach with Wendy. Photo credits: Wendy Emo.

Camilla Blikstad Halstvedt is an Associate Professor in Natural science education, currently working in the Department for Teacher Education at Østfold University College, Norway. She has her education and earlier experiences from biology and the research field of ecology, but she spent her last 10 years educating science student teachers. Her interests are focussed on Education for sustainable development and active learning or inquiry based learning. Her practice covers early childhood to upper secondary teacher education, as well as beyond qualification of professional teachers. Photo credits: Marianne Andreassen.



Eva-Lena Happstadius hold a Master's degree in Educational Practice with specialisation in subject didactics (mathematics). She works as a university lecturer at the University of Gothenburg, Sweden. After her Master's degree in educational work in June 2014 she teaches in courses at the Teacher Education Program focused on students 6–9 years. Her focus is mainly on Storyline, mathematics and communication. She has a background as a Primary and Secondary school teacher in Mathematics and Science. In recent years, her practical experience has been supplemented by a scientific and theoretical approach. Photo credits: Anna Udén.

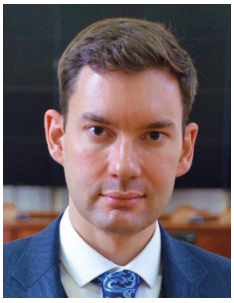
Ellen Høeg has over 40 years of experience as a teacher and principal in primary school in Tromsø in Norway. For 16 years, she also was a placement teacher in teacher education in Tromsø. Since the 90s she has been using Storyline together with cooperative learning as part of her teaching practice along with other innovative and aesthetic approaches to teaching and learning. Since Ellen retired in 2015, she has been hired annually by the teacher education at the Department of Teacher Education at Østfold University College to carry out and coach teacher educators in the development and implementation of Storyline as part of the interdisciplinary research project, *The Storyline Approach in Teacher Education*. Over the past year, this work has resulted in several papers for Nordic and international conferences and published one article (Høeg & Hjertaker, 2019). Photo credits: Kristine Høeg Karlsen.

Heidi Remberg Høeg is an Assistant Professor of Norwegian Language and Literature and Norwegian as a Second Language at the Faculty of Teacher Education at University of South-Eastern Norway, Campus Vestfold. She has previously taught at a school for learning Norwegian as a second language. She holds a Master's degree in Nordic languages and literature. In her work in Teacher Education, her focus has mainly been on children's language development, Norwegian as a second language (from kindergarten to high school), pedagogy, literature and Norwegian language history from the Norse period to modern Norwegian. She also participates in some cross-curricular projects on creativity, art and pedagogy. Photo: Thea Remberg Høeg.

Doris Kocher holds a PhD in Education and is a Senior Lecturer in the Department of Teaching English as a Foreign Language (TEFL) at the Paedagogische Hochschule/University of Education in Freiburg, Germany. She formerly worked as a teacher at secondary school and then continued her studies to get a degree/diploma in media education. At university she has conducted several research projects on the motivation and learning outcome of Storyline in TEFL. She teaches Storyline courses at university and other institutions, attends national and international conferences to share her experiences with Storyline, and furthermore wrote her doctoral thesis on Storyline in TEFL. Photo: Doris Kocher.

Virginia (Gini) Lockhart-Pedersen is Assistant Professor at the Norwegian National Center for English and Foreign Language in Education. She works with Teacher Education and Professional Development at Østfold University College, Norway. She has a MA in Special Education focusing on teaching English as a foreign language to students with reading and writing difficulties. With 16 years of practical experience in the Norwegian classroom, Gini now researches practical teaching approaches with a focus on interdisciplinary teaching and learning such as The Storyline Approach. She is interested in teacher education and the opportunities for creative, interdisciplinary approaches that meet the needs of all students. Photo credits: Marianne Andreassen.

Ali Reza Ludvigsen has been employed as an Assistant Professor of Mathematics at the Section for Mathematics at the Department of Teacher Education at Østfold University College (Norway) since 2007. He has extensive experience with mathematics teaching from kindergarten education to upper secondary courses for teachers in teacher education. His areas of interest are various forms of interdisciplinary, early learning and snooker. He is currently working on a Storyline project. Photo: Ali Reza Ludvigsen.



Peter J. Mitchell received his undergraduate education with distinction from the University of Durham (UK), followed by postgraduate studies at Tomsk State University and Tambov State University (Russia) and a doctorate from the University of Derby's School of Education (UK). He is associate professor and founding head of the Department of Translation and Language Communication at Tomsk State University. His research interests include action research, Storyline, collaborative teaching and learning, and the internationalisation of education. He is visiting professor at Tambov State University. At the age of 34 Peter became the youngest fellow of the Chartered Institute of Linguists (UK). His teaching excellence has been recognised by a commendation from the Russian Ministry of Education and Science. He lectures internationally on educational collaboration and English language teaching. Photo credits: Andrey Sapharov.

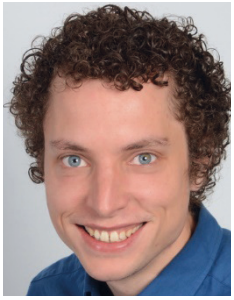
Gitte Cecilie Motzfeldt Is an Associate Professor in Geography, currently working in the Department for Teacher Education at Østfold University Collage, Norway. Her first degree was from Oslo University (Social Sciences) then a Master's from University of Life Science, Ås. She has worked in international research and development. Motzfeldt worked in the Horn of Africa for several years within the field of Food Security, Sustainability and Climate Change. She trained as a teacher 8 years ago at Østfold University College, and had 5 years teaching experience in upper secondary school before starting as a teacher educator in 2018. Photo credits: Marianne Andreassen

Ragnhild Næsje is an Assistant Professor of Norwegian at the Department of Teacher Education at Østfold University College in Halden, Norway. She specialises in the study of children's literature and in the didactics of literature. She holds an MA in the didactics of literature, and she has also published research dealing with pedagogical methods in the teacher trainee program. Photo credits: Marianne Andreassen

Carol Omand, Scotland, is an International Storyline Consultant, Trainer and Author of two books. She has over 40 years' experience in education including teaching from nursery to upper primary school, lecturing at University for Initial Teacher Education, she is a skilled deliverer of in-service training, with proven skills, creativity, and an open mind. A member of the International Storyline Leadership team, Carol has been invited to work in a number of countries where she trains student teachers and teachers in the Scottish Storyline Approach as a vehicle for raising attainment, developing creativity, problem solving and higher order thinking skills. Photo: John MacDonald.

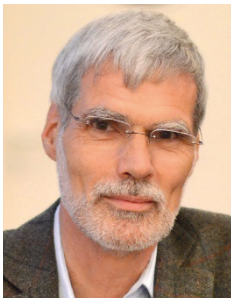
Kathryn Penrod taught home economics education before she earned her Ph.D. at Cornell University (USA). At South Dakota State University (USA) she taught a variety of courses in secondary teacher education; she is now Professor Emerita. Photo credits: South Dakota State University.

Hanne Eik Pilskog is an Associate Professor at the Faculty of Education at Østfold University College where she teaches natural sciences to teacher students. She has a PhD in Ecology from the Norwegian University of Life Sciences. Her research has been focused on ecological questions related to the community of beetles in old oaks and invertebrates in birds' nests in the Arctic. She is currently involved in research on The Storyline Approach and education for sustainable development in teacher education. In addition to The Storyline Approach her interests are in biological themes (e.g. ecology, zoology, botany and evolution), outdoor teaching and sustainable development. Photo credits: Bård Halvorsen.



Adrian K. Rasmussen is an Assistant Professor in Educational Science, currently working in the Department for Teacher Education at Østfold university. His background is in general ecology, and he brings these skills to his teaching. His main interest is outdoor education and studying the environment and he has achieved this aim in NGOs, various schools and in his own teaching. Photo credits: Marianne Andreassen.

Ellen Cecilie Romstad is Master of Education, specialising in Special Education. She also specialises in ICT in Special Education, Nordic basic and social pedagogy. Romstad has worked as a teacher, special educator and special education coordinator in primary, secondary and high school since 1995. She has in the last two years worked as an Asssitent Professor in ICT and learning in the Department for Teacher Education at Østfold University College. Photo credits: Marianne Andreassen.



Ulf Schwänke was born in 1945. He received a Master's degree from the Free University at Berlin and a doctorate in education from the University of Hamburg (Germany). He first got to know The Storyline Approach in 1979, when he visited the Jordanhill College of Education in Glasgow (now: Strathclyde University) as an exchange lecturer. For more than 30 years he has been working as a teacher and manager in adult education using The Storyline Approach with a variety of participants. Currently he is working as lecturer (Privatdozent) at Hamburg University. He is author of three books and a number of articles on Storyline. Photo credits: Hildegard Schooß.

Marit Storhaug works as a Senior Lecturer in social studies at OsloMet – Oslo Metropolitan University, Department of Primary and Secondary Teacher Education (Norway). Her academic background is pedagogics and social sciences. For many years of her career she has worked with and promoted the Storyline method in different ways: Resarch and development, extensive collaboration with the practice field and with student teachers at campus. Photo credits: Torkel Viken.

Solveig Toft is Assistant Professor in Arts and Crafts at the Department of Teacher Education at Østfold University College. She was educated in University of Bergen, Telemark Teacher College and the State Teacher College in Art and Crafts, with major in textile expression. She has taught in secondary school, many years at Østfold University College to educate pre-school teachers and student teachers in arts and crafts, and she was associated with follow-up studies to support teacher competence enhancement. She has contributed research focused on how to adapt creative processes and aesthetic learning processes in relation to various challenges in today's schools. Photo credits: Steinar Myhre.

Lynda Venhuizen's background is in early childhood education as both a teacher and program supervisor. She is currently the teacher certifi ation office and fi ld placement coordinator at South Dakota State University (USA), where she also has been a lecturer in early childhood education. Photo credits: South Dakota State University.

Anna Udén holds a Master's degree in Special Education and works as a University Lecturer at the University of Gothenburg (Sweden). Her specialist fi ld concerns literacy and young children's communication. She teaches in three types of courses at the Teacher Education Program: Pedagogy and general didactics, Swedish and work-based training courses. She has a holistic approach on young children's learning. She has a background as a Primary School Teacher and Special Needs Educational Teacher in Reading and Writing development. Photo credits: Margaretha Häggström.

Anna-Lena Østern holds a Doctorate in Pedagogy and a Licentiate in Literary Science. She is Professor in Arts Education (em.) at Norwegian University of Technology and Science, NTNU, Norway and Professor Emeritus at Åbo Akademi University, Finland. She is a teacher educator and researcher. From 2010 to 2015 she was academic leader of a national doctoral school NAFOL in Norway. The founding editor of JASEd, Journal for Research in Arts and Sports Education, her research interests are performative approaches to arts education, aesthetic approaches to learning, supervision, professional orality. A recent publication at Routledge is Østern & Knudsen (eds.) (2019). Performative approaches in arts education. Artful teaching, learning and research. Photo credits: Anna-Lena Østern.